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ATK Armament Systems Energetic Systems Radford Army Ammunition Plant Route 114, P.O. Box 1 Radford, VA 24143-0100

www.atk.com

April 3, 2012

Russell L. McAvoy, Jr. Hazardous Waste Permitting Virginia Department of Environmental Quality 629 East Main Street Richmond, Virginia 23219

Subject:

Permit Re-Application

SubPart O Explosive Waste Incinerator Permit Radford Army Ammunition Plant, Radford, Virginia

EPA ID#: VA1210020730

Dear Mr. McAvoy:

As a follow up to the letter dated March 6, 2012, which transmitted the Part A Permit Application and the permit application fee in the amount of \$42,100, enclosed is a copy of the redline-strike out permit for the Subpart O incinerator. As discussed in our May 4, 2011 meeting, a Part A permit application and a redline-strike out of the existing permit meets the requirements for a permit reissuance application. This application is being submitted in advance of the May 4, 2012 deadline for receiving an application (180 days prior to permit expiration date of October 31, 2012).

If you have any comments or questions please contact Mr. Jeremy Flint at 540/639-7668 (jeremy.flint@atk.com) or Jim McKenna of the Army staff.

Sincerely,

Paige Hold, Environmental Manager

Alliant Techsystems Inc.

Enclosure:

Redline strike out permit application

Concerning the following:

Permit Re-Application
SubPart O Explosive Waste Incinerator Permit
EPA ID#: VA1210020730

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.

SIGNATURE:

PRINTED NAME:

TITLE:

Wm Byron Penland

Lieutenant Colonel, US Army

Commanding

SIGNATURE: PRINTED NAME:

TITLE:

Anthony Miano

Vice President, OPS, Quality Assurance,

Safety, Environmental, and Security

ATK Energetics Systems

REVISED PERMIT FOR THE STORAGE AND TREATMENT OF HAZARDOUS WASTE



Radford Army Ammunition Plant State Route 114 Radford, Virginia 24141 EPA ID No. VA1210020730

United States Army (Owner) Alliant Techsystems Inc. (Operator)

Submitted for Review April 2012

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MODULE I – STANDARD CONDITIONS

I.A. EFFECT OF PERMIT

This Permit, issued by the Director pursuant to 40 CFR 270.1(c)(4), authorizes only the management of hazardous waste expressly described in this Permit and in accordance with the conditions of this Permit and -with the applicable provisions of 9 VAC 20-60. Any management of hazardous waste by the Permittees in the permitted treatment and storage area or in the closed hazardous waste management units (HWMUs) which that is not authorized by this Permit or 9 VAC 20--60, and for which a permit is required under Chapter 14, Article 4, Title 10.1, Code of Virginia (1950), as amended, is prohibited. Compliance with this Permit generally constitutes compliance, for the purposes of enforcement, with Chapter 14, Article 4, Title 10.1-1426, Code of Virginia (1950), as amended. This Permit does not convey any property rights of any sort, or any exclusive privilege. Possession of a permit does not authorize any injury to persons or property or invasion of other private rights, or any infringement of Commonwealth or local laws or regulations. Compliance with the terms of this Permit may not constitute a defense to any action brought under Chapter 14. Article 8, Code of Virginia (1950), as amended, or any other Commonwealth law governing protection of the public or the environment.

I.B. PERMIT ACTIONS

- I.B.1. This Permit may be modified, revoked and reissued, or terminated for cause as specified in 40 CFR 124.5, 270.30(f), 270.41, and 270.43. The filing of a request by the Permittees for a permit modification, revocation and reissuance, or termination, or the notification of planned changes or anticipated noncompliance does not stay the applicability or enforceability of any permit condition.
- I.B.2. Permit modifications at the request of the Permittees shall be done as specified by 40 CFR 270.42.

I.C. SEVERABILITY

- I.C.1. The provisions of this Permit are severable, and if any provision of this Permit or the application of any provision of this Permit to any circumstance is held invalid, the application of such provision to other circumstances and the remainder of this Permit shall not be affected thereby. Invalidation of any Commonwealth or Federal statutory or regulatory provision which that forms the basis for any condition of this Permit does not affect the validity of any other Commonwealth or Federal statutory or regulatory basis for said condition.
- I.C.2. In the event that a condition of this Permit is stayed for any reason, the Permittees shall continue to comply with the related applicable and relevant interim status

standards in 40 CFR 270.10(e)265 until final resolution of the stayed condition unless the Director determines compliance with the related applicable and relevant interim status standards would be technologically incompatible with compliance with other conditions of this Permit which that have not been stayed.

I.D. <u>DUTIES AND REQUIREMENTS</u>

I.D.1. <u>Duty to Comply</u>

The Permittees shall comply with all conditions of this Permit, except that the Permittees need not comply with the conditions of this Permit to the extent and for the duration such noncompliance is authorized by an emergency permit (see 40 CFR 270.61). Any permit noncompliance, except under the terms of an emergency permit, constitutes a violation of Title 10.1 Code of Virginia (1950), as amended and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or for denial of a permit renewal application.

I.D.2. Duty to Reapply

If the Permittees wish to continue an activity regulated by this Permit after the expiration date of this Permit, the Permittees shall apply for and obtain a new permit as specified below.

- a. The Permittees shall submit a new application at least 180 days before the expiration date of the Permit, unless a later date has been granted by the Director.
- b. Pursuant to 40 CFR 270.10(h), the Director shall not grant permission for an application to be submitted later than the expiration date of the existing permit.

I.D.3. Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for the Permittees in an enforcement action to argue that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this Permit.

I.D.4. <u>Duty to Mitigate</u>

In the event of noncompliance with the Permit, the Permittees shall take all reasonable steps to minimize releases to the environment, and shall carry out such measures as are reasonable to prevent significant adverse impacts on human health or the environment.

I.D.5. Proper Operation and Maintenance

The Permittees shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which that are installed or used by the Permittees to achieve compliance with the conditions of this Permit. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls, including quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems only when necessary to achieve compliance with the conditions of this Permit.

I.D.6. Duty to Provide Information

The Permittees shall furnish to the Director within a reasonable time, any pertinent information which that the Director may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this Permit; or to determine compliance with this Permit. The Permittees shall also furnish to the Director, upon request, copies of records required to be kept by this Permit.

I.D.7. Inspection and Entry

The Permittees shall allow the Director or an authorized representative, upon the presentation of credentials and other documents as may by required by law to:

- a. Enter at reasonable times upon the Permittees' premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this Permit;
- b. Have access to and copy, at reasonable times, any records that must be kept under conditions of this Permit;
- Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Permit; and
- d. Sample or monitor at reasonable times for the purposes of assuring permit compliance or as otherwise authorized by 9 VAC 20-60, any substances or parameters at any location.

I.D.8. Reporting Planned Changes

The Permittees shall give notice to the Director as soon as possible of any planned physical alterations or additions to the permitted facility <u>pursuant to 40 CFR</u> 270.30(l)(1). If these changes will require a permit modification, the Permittee shall prepare a modification request as required by 40 CFR 270.42. This notice

request shall specify the exact change to be made to the permit conditions and any supporting documents referenced by the permit. In addition, this request shall include all applicable information required by 40 CFR 270.13 through 270.21, 270.62, and 270.63. include a description of all incidents of noncompliance reasonably expected to result from the proposed changes.

I.D.9. <u>Anticipated Noncompliance</u>

The Permittees shall give advance written notice to the Director of any planned changes in the permitted facility or activity that may result in noncompliance with Permit requirements pursuant to 40 CFR 270.30(1)(2).

I.D.10. New and Modified Portions of Any Waste Management Unit

The Permittees shall not store or treat hazardous waste in any new or modified portion of the hazardous waste management unit, except as provided in 40 CFR 270.42, until the Permittees have submitted to the Director, by certified mail or hand delivery, a letter signed by the Permittees and where required a professional engineer registered by the Commonwealth stating that the facility has been constructed or modified in compliance with the Permit; and:

- a. The Director has inspected the modified or newly constructed facility and finds it is in compliance with the conditions of the Permit; or
- b. Within 15 days of the date of submission of the letter required pursuant to Permit Condition I.D.10, if the Permittees have not received notice from the Director of his intent to inspect, prior inspection is waived and the Permittees may commence treatment of hazardous waste.

I.D.11. <u>Twenty-four Hour Reporting</u>

The Permittees shall report to the Director any noncompliance which that may endanger health or the environment. Information shall be provided orally as required by 40 CFR 270.30(1)(6) within twenty-four (24) hours from the time the Permittees become aware of the circumstances. The information specified in a. and b. below shall be included as information that shall be reported orally within 24 hours.

- a. Information concerning the release of any hazardous waste that may cause an endangerment to public drinking water supplies shall be reported.
- <u>b.</u> Any information of a release or discharge of hazardous waste, or of a fire or explosion at the facility, <u>which that</u> could threaten the environment or human health outside the facility shall be reported.

- b. The description of the occurrence and its cause shall include:
 - i. Name, address, and telephone number of the owner or operator;
 - ii. Name, address, and telephone number of the facility;
 - iii. Date, time, and type of incident;
 - iv. Names and quantities of material(s) involved;
 - v. The extent of injuries, if any;
 - vi. An assessment of actual or potential hazard to the environment and human health outside the facility, where this is applicable; and
 - vii. Estimated quantity and disposition of recovered material that resulted from the incident.
- c. A written submission shall also be provided to the Director within five (5) days of the time the Permittees become aware of the circumstances <u>pursuant</u> to 40 CFR 270.30(l)(6)(iii). The written submission shall contain a description of the noncompliance and its cause; the periods of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance. The Director may waive the 5-day notice requirement in favor of a written report within fifteen (15) days prepared pursuant to Permit Condition II.H.5 and 40 CFR 270.30(l)(6)(iii).

I.D.12. Other Noncompliance

The Permittees shall report all other instances of noncompliance not otherwise reported pursuant to Permit Conditions I.D.11, I.D.13, and I.E.1 at the time monitoring reports are submitted. The reports shall contain the information listed in Permit Condition I.D.11.

I.D.13. Other Information

Whenever the Permittees become aware that they failed to submit any relevant facts in the permit application, or submitted incorrect information in a permit application or in any report to the Director, the Permittees shall promptly submit such facts or information to the Director.

I.E. <u>MONITORING AND RECORDS</u>

I.E.1. <u>Monitoring Reports</u>

Monitoring shall be performed and results shall be reported at the intervals specified in the Permit.

- I.E.2. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. The method used to obtain a representative sample of the waste to be analyzed must be the appropriate method specified in 40 CFR 261, Appendix I, or an equivalent method approved by the EPA, or a method specified in this Permit. Laboratory methods must be those specified in *Test Methods for Evaluating Solid Waste: Physical/Chemical Methods*, SW-846 (3rd ed.; November, 1986, as updated), Standard Methods of Wastewater Analysis (16th ed.; 1985), an equivalent method approved by the EPA, or RFAAP Laboratory methods specified in Table 1 of Attachment II.B. (See Module II. Attachment II.B. Waste Analysis Plan.) this Permit
- I.E.3. The Permittees shall retain records of all monitoring information, including all calibration and maintenance records, and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports and records required by this Permit, all certifications required by 40 CFR 264.73(b)(9), and records of all data used to complete the application for this Permit, for a period of at least 3 years (or longer if specified elsewhere in this Permit) from the date of the sample collection, measurement, report, certification, or application. These retention periods may be extended by the request of the Director at any time and are automatically extended during the course of any unresolved enforcement actions regarding this facility.

Records of monitoring information shall include at a minimum:

- a. The date, exact place, and time of sampling or measurements;
- b. The individual(s) who performed the sampling or measurements;
- c. The date(s) analyses were performed;
- d. The individual(s) who performed the analyses;
- e. The analytical techniques or methods used; and
- f. The results of such analyses.

I.F. COMPLIANCE NOT CONSTITUTING DEFENSE

Compliance with the terms of this Permit does not constitute a defense to any action brought under Chapter 14, Article 8 of Title 10.1, Code of Virginia (1950) as amended or any other Commonwealth law governing protection of the public or the environment.

I.G. TRANSFER OF PERMITS

This Permit is not transferrable to any person except after notice to the Director. The Director may require modification or revocation and reissuance pursuant to 40 CFR 124.5, 270.40, 270.41, 270.42, and 270.43 to change the name of the Permittees and to incorporate such other requirements as may be necessary. Before transferring ownership or operation of the facility during its operating life, the Permittees shall notify the new owner or operator in writing of the requirements of 9 VAC 20-60-264 and -40 CFR 270.

I.H. PERMIT EXPIRATION AND CONTINUATION

Pursuant to 9 VAC 20-60-270 B 5 this Permit will remain in force until the effective date of a new permit if the Permittees have submitted a timely, and complete application pursuant to Permit Condition I.D.2.a and through no fault of the Permittees, the Director has not issued a new permit with an effective date on or before the expiration date of this Permit. All conditions of the continued Permit shall remain fully effective and enforceable.

I.I. REPORTS, NOTIFICATIONS, AND SUBMISSIONS TO THE DEPARTMENT

I.I.1. <u>Biennial Report</u>

The Permittees shall submit a biennial report to the Department which that covers facility activities during the previous year. At a minimum this report will include:

- a. The generator biennial report pursuant to 40 CFR 262.41; and
- b. The hazardous waste management facility biennial report pursuant to 40 CFR 270.30(1)(9).
- I.I.2. All reports, notifications or other submissions which that are required by this Permit to be sent or given to the Director should be sent be certified mail, sent by certified carrier, or be hand-delivered to:

Director, Office of Waste Permitting Department of Environmental Quality PO Box 10009 Richmond, Virginia 23240-0009 Telephone Number (804) 698-4000

Copies of all such correspondence should also be sent to:

Director, West Central Regional Office Department of Environmental Quality 3019 Peters Creek Road Roanoke, VA 24019

Section Chief, Hazardous Waste Management Division Environmental Protection Agency, Region III 1650 Arch Street Philadelphia, PA 19103-2029

I.I.3. Signatory Requirements

All applications, reports, or information submitted to the Director shall be signed and certified as specified by 40 CFR 270.11.

I.J. DOCUMENTS TO BE MAINTAINED AT THE FACILITY SITE

- I.J.1. Current copies of the following documents, as amended, revised, and modified, shall be maintained at the facility. These documents shall be maintained until post-closure care is completed and certified by the Permittees and by an independent, Virginia-registered professional engineer, unless a lesser time is specified in the Permit.
 - a. The Permit, including all attachments;
 - b. All Part B Permit Applications supporting the Permit;
 - c. The facility operating record required by 40 CFR 264.73, Permit Condition II.I.2.;
 - d. Inspection schedules and logs required by 40 CFR 264.15(b)(2) and 264.15(d);
 - e. Personnel training documents and records required by 40 CFR 264.16 and this Permit;
 - f. Closure Plans, as required by 40 CFR 264.112(a) and this Permit; and
 - g. Post-Closure Plans, as required by 40 CFR 264.118(a) and this Permit.

MODULE II – GENERAL FACILITY CONDITIONS

II.A. WASTE ANALYSIS

II.A.1. General Waste Analysis

The Permittees shall follow the procedures described in the Waste Analysis Plan, Attachment II.B. Waste analysis shall require, at a minimum, the maintenance of proper functional instruments, use of approved sampling and analytical methods, verification of the validity of sampling and analytical procedures, and correct calculations. If the Permittees do not have -sufficient capability for analysis, then the Permittees shall inform the laboratory performing the analysis that the laboratory must operate under the waste analysis conditions placed on the Permittees.

II.B. SECURITY

The Permittees shall comply with the security provisions of 40 CFR 264.14. The security provisions shall follow the outline in Attachment II.G.

II.C. GENERAL INSPECTION REQUIREMENTS

The Permittees shall follow the inspection schedule set out in the Inspection Schedule, Attachment II.C. The Permittees shall remedy any deterioration or malfunction discovered during an inspection as required by 40 CFR 264.15(c). Records of inspections shall be kept as required by 40 CFR 264.15(d) and Permit Condition II.1.2.dc.vxii.

II.D. PERSONNEL TRAINING

The Permittees shall conduct personnel training as required by 40 CFR 264.16. This training program shall follow Personnel Training, Attachment II.D. The Permittees shall maintain training documents and records as required by 40 CFR 264.16(d)(4) and 264.16(e) as well as Permit Conditions II.I.2.ba.vii. and II.I.2.dc.iiiix.

II.E. GENERAL REQUIREMENTS FOR REACTIVE WASTE

The Permittees shall comply with the requirements of 40 CFR 264.17. The Permittees shall follow the procedures for the handling of reactive waste detailed in Attachment III.1.C. (see Module III, Part III.1).

II.F. FLOODPLAIN STANDARD

The Permittees shall comply with the requirements of 40 CFR 264.18(b). The Permittees shall follow the flood plan in Attachment II.H.

II.G. PREPAREDNESS AND PREVENTION

II.G.1. Design and Operation of Facility

The Permittees shall maintain and operate the facility to minimize the possibility of a fire, explosion, or any unplanned sudden or nonsudden release of hazardous waste constituents to air, soil, or surface water that could threaten human health or the environment.

II.G.2. Required Equipment

At a minimum, the Permittees shall equip the facility with the equipment set forth in the Contingency Plan, Attachment II.E, as required by 40 CFR 264.32.

II.G.3. <u>Testing and Maintenance of Equipment</u>

The Permittees shall test and maintain the equipment specified in Permit Condition II.G.2 and in Attachment II.E as necessary to assure its proper operation in time of emergency.

II.G.4. Access to Communications or Alarm System

The Permittees shall maintain access to the communication or alarm system as required by 40 CFR 264.34.

II.G.5. Arrangements with Local Authorities

The Permittees shall maintain arrangements with State and local authorities as required by 40 CFR 264.37. If State and local officials refuse to enter into or renew existing preparedness and prevention arrangements with the Permittees, the Permittees shall document this refusal in the operating record pursuant to Permit Condition II.I.2.ed.iv.

II.H. CONTINGENCY PLAN

II.H.1. Implementation of Plan

The Permittees shall immediately carry out the provisions of the Contingency Plan, Attachment II.E, and follow the emergency procedures described by 40 CFR 264.56, whenever there is an imminent or actual fire, explosion, or release of

hazardous waste or constituents which that threaten or could threaten human health or the environment.

II.H.2. Copies of Plan

The Permittees shall comply with the requirements of 40 CFR 264.53.

II.H.3. Amendments to Plan

The Permittees shall review and immediately amend, if necessary, the contingency planPlan, as required by 40 CFR 264.54.

II.H.4. Emergency Coordinator

The Permittees shall comply with the requirements of 40 CFR 264.55.

II.H.5. <u>Emergency Procedures</u>

The Permittees shall comply with the requirements of 40 CFR 264.56 including the recordkeeping and reporting requirements specified in Permit Condition II.I.2.ac.ivvii.

II.I. RECORDKEEPING AND REPORTING

II.I.1. <u>Notification, Certification, and Recordkeeping Requirements</u>

In addition to the recordkeeping and reporting requirements specified elsewhere in this Permit, the Permittees shall comply with all the applicable notification, certification, and recordkeeping requirements described in 40 CFR 264.73(b)(12) and 268.7.

II.I.2. Operating Record

The Permittees shall maintain a written operating record at the facility, consisting of records kept for the lengths of time specified below. The record can be a compilation of various documents. The operating record shall include, but shall not be limited to, the information listed below:

- The following records shall be maintained until closure is complete and certified:
 - i. A current map showing the location of hazardous waste management units and non-regulated units within the facility;
 - A map showing all locations of past hazardous waste management units if different from present locations;

Comment [RFAAP1]: Changes in this section made to reflect those implemented as a result of the April 2006 burden reduction rule. See Federal Register Vol. 71, No. 64, pp. 16862 - 16915.

- iii. Pursuant to 40 CFR 264.73(b)(1), a description and the quantity of each hazardous waste received, and the method(s) and date(s) of its treatment, storage, or disposal at the facility;
- iv. The time, date, and details of any incident that requires implementation of the contingency plan, including copies of all reports prepared pursuant to 40 CFR 264.56(j) and Permit Condition II.H.5. or I.D.11.e.;
- All submittals prepared pursuant to Permit Condition I.D.13 (revised or supplemental permit application materials);
- Records and results of waste analyses required by 40 CFR 264.13, pursuant to 40 CFR 264.73(b)(3), which shall include at a minimum:
 - A. The date(s), exact place, and times of sampling or measurements;
 - B. The name of the individual(s) who performed the sampling or measurements;
 - C. The date(s) analyses were performed, demonstrating that holding times for the methods specified in the Waste Analysis Plan, Attachment II.B were satisfied;
 - D. The name of the individual(s) who performed the analyses;
 - E. The analytical techniques or method used;
 - F. The analytical results;
 - G. The QA/QC summary; and
 - H. The type and model number of the equipment used for analysis.
- All waste determinations and waste profile determinations made pursuant to the Waste Analysis Plan, Attachment II.B.
- viii. Certifications pursuant to 40 CFR 264.73(b)(9) (Waste Reduction Plan); and
- v. Certifications as required by 40 CFR 264.196(f) (Leaks or spills from leaking or unfit-for-use tank systems);
- vi. The notice and certification required by a generator under 40 CFR 268.7 (Land Disposal Restrictions) pursuant to 40 CFR 264.73(b)(10):

- vii. Training records of current facility personnel pursuant to 40 CFR 264.16(e);
- ix.
- x. The most recent revisions of all Operating Procedures listed in Table III-1.
- The following records shall be maintained until post-closure is complete and certified:
 - i-viii. Records of spills and releases required by existing environmental laws, including, but not limited to <u>Section</u> 103 of the Comprehensive Environmental Response, Compensation and Liability Act; and
 - <u>ii.ix.</u> Written reports and records of verbal notification to the Director and the Administrator to address releases, fires, and explosions;
 - iii. All reports of noncompliance pursuant to Permit Condition I.D.12.;
- iv. All reports prepared pursuant to Permit Condition I.D.11.;
- v. Records of all monitoring information pursuant to Permit Condition I.E.; and
- vi. Training records of current facility personnel.
 - e-<u>b.</u> The following records shall be maintained for a minimum of 5 years. This time period may be extended by the Department in the event of enforcement action or notification by the Department that an investigation is ongoing.
 - i. Facility operation and maintenance records and reports prepared pursuant to this Permit; and
 - Progress reports and any required notifications prepared pursuant to this Permit.

 iii. Monitoring, testing, or analytical data, where required by 40 CFR 264.347 (monitoring and inspections for incinerators).
 - d.c. The following records shall be maintained for a minimum of 3 years. This time period may be extended by the Department in the event of enforcement action or notification by the Department that an investigation is ongoing.
 - Generator biennial reports submitted in compliance with 40 CFR 262.41;
 - <u>ii.</u> Facility biennial reports submitted in compliance with 40 CFR 264.75;
 - iii. All reports of noncompliance pursuant to Permit Condition I.D.12;

- v. All reports prepared pursuant to Permit Condition I.D.11;
- v. Facility operation and maintenance records and reports prepared pursuant to this Permit;
- ii.vi. Progress reports and any required notifications prepared pursuant to this Permit;
- vii. Summary reports and details of any incident that requires implementation of the Contingency Plan, including copies of all reports prepared pursuant to 40 CFR 264.56(i) and Permit Condition II.H.5. or I.D.11.c.;
- viii. Certifications pursuant to 40 CFR 264.73(b)(9) (Waste Reduction Plan);
- Training records of former facility personnel <u>pursuant to 40 CFR</u> 264.16(e);
- x. Records and results of waste analyses required by 40 CFR 264.13, pursuant to 40 CFR 264.73(b)(3), which shall include at a minimum:
 - A. The date(s), exact place, and times of sampling or measurements;
 - B. The name of the individual(s) who performed the sampling or measurements;
 - C. The date(s) analyses were performed;
 - D. The name of the individual(s) who performed the analyses;
 - E. The analytical techniques or method used;
 - F. The analytical results; and
 - G. The QA/QC summary;
- x. All waste determinations and waste profile determinations made pursuant to the Waste Analysis Plan, Attachment II.B;
- <u>iv.xi.</u> Records of all monitoring information pursuant to Permit Condition _I.E.3-; and
- *-xii. Records of all inspections, pursuant to 40 CFR 264.15(d), which shall include at a minimum:

- A. The date and time of the inspection;
- B. The name of the person performing the inspection;
- C. A notation of the observations made; and
- D. The date and nature of any repairs or remedial actions.
- e.d. Current copies of the following documents as amended, revised, and modified shall be maintained at the facility until closure and corrective action are complete and certified:
 - i. Contingency Plan;
 - ii. Personnel Training;
 - iii. Waste Analysis Plan;
 - Documentation of arrangements made with local authorities pursuant to 40 CFR 264.37;
 - v. Closure Plan;
 - vi. Documentation-Plans pertaining to the storage and treatment of reactive waste in tanks required pursuant to 40 CFR 264.17(c) and Permit Condition III.1.C.1. (see Module III, Part III.1); and
 - vii. For all new and converted "new" tank systems, pursuant to 40 CFR 264.192:
 - A. An assessment, by an independent, registered professional engineer or independent qualified tank installation inspector not affiliated with the tank vendor, certified by an independent, registered professional engineer, that the tank system was installed properly and that all discrepancies have been repaired;
 - B. Results of tightness testing and integrity assessments; and
 - C. For all tanks which require corrosion protection, a written statement from a corrosion expert that attests to the proper design and installation of any corrosion protection measures.
 - viii-vii. Documentation and information-Monitoring plans for equipment leaks as required by 40 CFR 264.1064, Air Emission Standards for Equipment Leaks (see Module III, Attachment III.A-); and

ix.viii. Documentation and information Monitoring plans or information on monitoring exemptions as required by 40 CFR 264.1089, Air Emission Standards for Tanks, Surface Impoundments, and Containers (see Module III, Attachment III.B).

II.J. <u>CLOSURE</u>

II.J.1. Performance Standard

The Permittees shall close the permitted treatment and storage area as required by 40 CFR 264.111, and in accordance with the Closure Plan, Attachment II.F.

II.J.2. <u>Amendments to Closure Plan</u>

The Permittees shall amend the <u>closure <u>Plan Plan</u> in accordance with 40 CFR 264.112 whenever necessary.</u>

II.J.3. Notification of Closure

The Permittees shall notify the Director at least 45 days prior to the date they expect to begin closure as required by 40 CFR 264.112(d).

II.J.4. Time Allowed for Closure

After receiving the final volume of hazardous waste, the Permittees shall treat or remove from the permitted treatment and storage area all hazardous waste and shall complete closure activities in accordance with the schedules specified in the Closure Plan, Attachment II.F.

II.J.5. Disposal or Decontamination of Equipment

The Permittees shall decontaminate and/or dispose of all facility equipment as required by 40 CFR 264.114 and the Closure Plan, Attachment II.F.

II.J.6. Certification of Closure

The Permittees shall certify that the permitted treatment and storage area has been closed in accordance with the specifications in the closure plan as required by 40 _CFR 264.115.

MODULE II – LIST OF ATTACHMENTS

The following Attachments are incorporated, in their entirety, by reference into this Permit. These incorporated attachments are enforceable conditions of this Permit. Some of the documents contain excerpts from the Permittees' Hazardous Waste Permit Application. The Department has, as deemed necessary, modified specific language excerpted from the permit application. Additional modifications are prescribed in the Permit Conditions (Modules I through IX), and thereby supersede the language of the attachments. Facility operations shall be in accordance with the contents of the Attachments and this Permit.

Attachment II.A - Facility Description

Attachment II.B - Waste Analysis Plan

Attachment II.C - Inspection Schedule

Attachment II.D – Personnel Training

Attachment II.E - Contingency Plan

Attachment II.F - Closure Plan

Attachment II.G - Security Provisions

Attachment II.H – Flood Proofing/Protection Plans and Specifications and 100-Year Flood Response Procedures

ATTACHMENT II.A

FACILITY DESCRIPTION

ATTACHMENT II.A - FACILITY DESCRIPTION

II.A.1. Facility

The Radford Army Ammunition Plant (RFAAP) encompasses approximately 4,104 acres of land and is located in southwest Virginia in Pulaski and Montgomery Counties (as shown on Figure II.A-1). The RFAAP is located approximately 5 miles northeast of the city of Radford, 10 miles west of Blacksburg, and 47 miles southwest of Roanoke. The New River separates Pulaski and Montgomery Counties and also divides the RFAAP into two (2) portions commonly known as the Horseshoe Area and the Main Manufacturing Area. These areas, and the approximate outline of the RFAAP boundary, are shown on the topographic map in Figure II.A-2.

For the purposes of this Permit, the facility consists of all contiguous portions of the RFAAP owned by the United States Army (US Army). -under the control or either the United States Army or Alliant Ammunition and Powder Company, LLC. The facility specifically includes both the Horseshoe Area and the Main Manufacturing Area. In addition, waste from the nearby New River Unit (NRU) will also be accepted and treated in the permitted storage and treatment area. The NRU is under control of the same US Army commander. No other offsite wastes other than those from the NRU will be handed at the RFAAP.

Comment [RFAAP1]: Please note that this is a new request included as part of this permit application.

II.A.2. Permitted Treatment and Storage Area

Pursuant to 40 CFR 270.1(c)(4), this Permit is effective for only a portion of the facility. The "permitted treatment and storage area" is located in the north central portion of the Horseshoe Area of the facility. Figures II.A-3-2 and II.A-4-3 show the approximate location and boundary of the area, respectivelyprovide the topographic characteristics of the area, demonstrate the facility boundary, and specify the location of each of the permitted units and surrounding structures. Figure II.A-6-4 depicts the land use within 1,000 feet of the Radford AAP property linewith 3 kilometers of the "permitted treatment and storage area." Figure II.A-7-5 depicts a topographic map with the 100-year flood elevation as it relates to the "permitted treatment and storage area." Flood Proofing/Protection Plans and Specifications and 100-year Flood Response Procedures are in Attachment II.H of Module II.

Included in the "permitted treatment and storage area" are the locations of all grinding, tank storage and treatment, and incinerator operations associated with the incineration of <a href="https://hazardous.ncbe/haz

Comment [RFAAP2]: The changes that follow in this section are made to provide clarity to the buildings and structures that are located at the site and how those buildings and structures fit within the context of this permit. area"-include, but are not limited to, the following (refer to Figure II.A-5 for structure designations):

- The Grinder Building (identified as Building/Account No. 442), where wastes are accumulated and ground into small pieces prior to being mixed into the slurry and incinerated. The Grinder Building houses the two permitted storage tanks. Grind Houses, accounts 430 and 442
- Incinerators 440 and 441 (identified as Accounts 440 and 441), where the slurried wastes are treated in accordance with this Permit and the requirements of the Hazardous Waste Combustor National Emission Standards for Hazardous Air Pollutants.
- Control Houses, accounts 431 and 447
- Incinerator Buildings, accounts 440 and 441
- Ancillary Buildings, accounts A-440, B-440, and A-441

The following accounts areas are specifically excluded from the "permitted treatment and storage area" (refer to Figure II.A-5-3 for structure designations) as these are included in the USEPA RCRA Corrective Action Permit or were closed under previous closure plans administered by the DEQ:

Settling Ponds #1 and #2 (identified as, accounts Accounts 445 and 446), which are included as Solid Waste Management Unit (SWMU) No. 39 in the USEPA RCRA Corrective Action Permit;

The following accounts are specifically excluded from the "permitted treatment and storage area" (refer to Figure II.A 5 for structure designations) as these were closed under previous closure plans:

- Incinerator Fuel Oil Storage Units, including accounts Structures
 432 and 443, which were underground storage tanks used for fuel
 oil storage and were previously closed under a plan administered
 by the DEQ;
- Spray Pond (identified as, structure Account 444), which was
 identified as Hazardous Waste Management Unit (HWMU) No. 39
 and was previously closed under a plan administered by the DEQ;
 and
- Ancillary <u>bB</u>uilding, <u>structure</u>_A-444, <u>which served as the</u>
 pumphouse for the spray pond and was previously closed under a
 plan administered by the DEQ

In addition to these areas, there are several other structures in the general vicinity of the incinerators that are not included in the permitted storage and treatment area because they are not used to storage hazardous waste or do not accumulate waste for periods greater than 90 days. These buildings and structures include:

- The incinerator control room and adjacent supply area (identified as Buildings 431 and 447);
- Temporary waste accumulation area (identified as Building 430), which is used to accumulate wastes for < 90 day periods prior to treatment in the incinerator; and
- Ancillary buildings in the incinerator complex that store supplies and/or instrument equipment and calibration gases (identified as Accounts A-440, B-440, and A-441).

II.A.3. Auer Land Use Analysis

Figure II.A-4 provides a map of the land use within 1,000 feet of the property boundary. The land use surrounding the permitted treatment and storage areas in a 3 km radius around the incinerators' stacks is evaluated according to the Auer land use analysis method. Surrounding land use information is required for air dispersion modeling and the selection of exposure scenario locations in the human health and ecological risk assessments of the incinerators' emissions is largely rural, with a large portion of the area being covered in deciduous forest. Subtracting out those developed areas occupied by the RFAAP property, the next highest percentage of land use is represented as pasture or hay regions. The majority of development exists to the southeast of the main gate, along Peppers Ferry Road, and across the river opposite the Horseshoe Area northwest of the plant. Nearby towns include:

- Radford, which is approximately 4 miles south of the RFAAP;
- Christiansburg, which is approximately 9 miles southeast of the RFAAP; and
- Blacksburg, which is located approximately 7 miles to the northeast.

The nearest schools to the facility boundary include Belview Elementary School, Riverlawn Elementary School, and Prices Fork Elementary School, all of which are at least 2.5 miles from the permitted storage and treatment area.

The Auer land use analysis method specifies that the land is considered rural if less than 50 percent of the land is considered industrial, commercial, or compact residential. The specific land use types considered urban are Category I1, I2, C1, R2, or R3 as described in Table II.A-1. Much of the land area within the circle was within the boundaries of the RFAAP facility, and was considered urban due to the facility's industrial use. Table II.A-1 and Figure II.A-6 illustrate the land use for the area is approximately 35% urban (approximately 9,900,000 square meters out of a total 28,274,334 square meters). Almost all of the area outside the facility is rural and approximately 65% or 18,400,000 m² of the entire 3 km radius circle is rural in nature.

Comment [RFAAP3]: Removed Auer land use references, as more recent land use data is available and was used in creating this description and the associated map.

The land use was estimated by drawing a 3 km circle using the incinerator stacks as the center of the circle. The area of the circle was then divided into eight sectors. Within the large circle, three (3) smaller concentric circles were drawn at regular intervals. Once the area was divided into sufficiently small sub-sections, the land was estimated based on the color coding system and building spacing from the 7.5 minute USGS Radford North Quadrangle. When the land use had been estimated for the subsections, the percentages were totaled to determine the land use of the entire section.

TABLE II.A-1 LAND USE CLASSIFICATIONS FOR AUER LAND USE ANALYSIS

Classification	Description			
	Use	Structures	Vegetation	
H	Heavy Industrial	Major chemical, steel, fabrication industries; generally 3-5 story buildings, flat roofs	Grass tree growth extremely rare; <5% vegetation	
12	Light-Moderate Industrial	Rail yards, truck depots, warehouses, industrial parks, minor fabrications; generally 1-3 story buildings, flat roofs	Very limited grass, tree almost total absent; <5% vegetation	
CT	Commercial	Office and apartment buildings, hotels; >10 story heights, flat roofs	Limited grass and trees; <15% vegetation	
R1	Common Residential	Single family dwelling with normal easements; generally one story, pitched roof structures; frequent driveways	Abundant grass lawns and light- moderately wooded; >70% vegetation	
R2	Compact Residential	Single, some multiple, family dwelling with close spacing; generally <2 story, pitched roof structures; garages (via alley), no driveways	Limited lawn sizes and shade trees; <30% vegetation	
R3	Compact Residential	Old multi-family dwellings with close (<2m) lateral separation; generally 2 story, flat roof structures; garages (via alley) and ashpits, no driveways	Limited lawn sizes, old established shade trees; <35% vegetation	
R4	Estate Residential	Expansive family dwelling on multi-acre tracts	Abundant grass lawns and lightly wooded; >80% vegetation	
A1	Metropolitan Natural	Major municipal, state or federal parks, golf courses, cemeteries, campuses; occasional single-story structures	Nearly total grass and lightly wooded; >95% vegetation	
A2	Agricultural Rural		Local crops (e.g., corn, soybean); >95% vegetation	
A3	Undeveloped	Uncultivated; wasteland	Mostly wild grasses and weeds, lightly wooded; >90% vegetation	
A4	Undeveloped Rural		Heavily wooded; >95% vegetation	
A5-	Water Surfaces	Rivers, lakes		

Remove this page and insert the following:

Figure II.A-1 — Figure AA-1 from Sept. 2000 permit

appl. General Location Map of the Radford Army Ammunition Plant

 $Figure~II.A-2 - {\scriptstyle \frac{1}{Figure~AA-2~from~Sept.~2000~permit}} {\scriptstyle \frac{appl.Topographic~Map~of~the~Radford~Army~Ammunition~Plant}}$

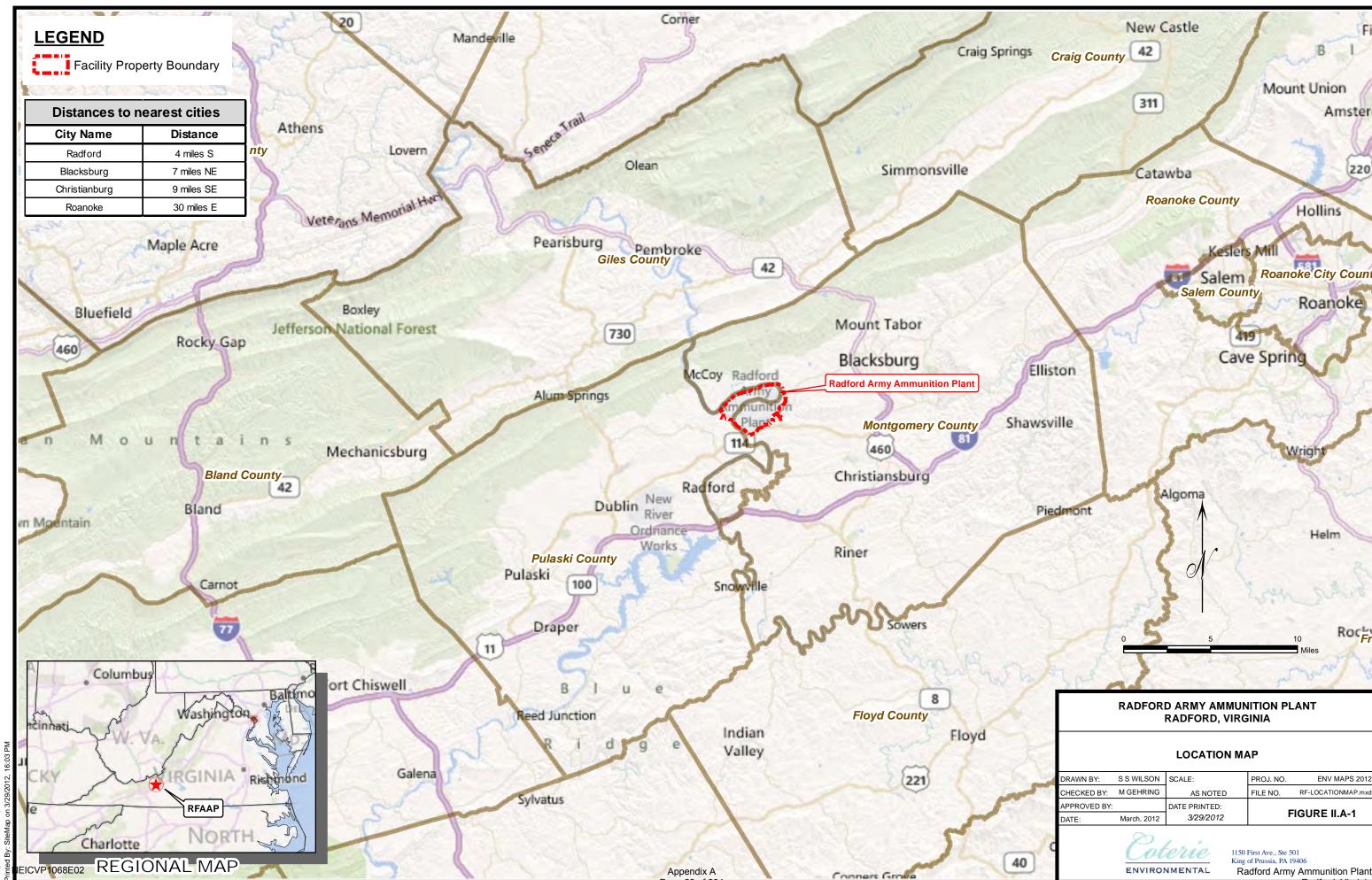
Figure II.A-3 — Figure AA-3 from Sept. 2000 permit

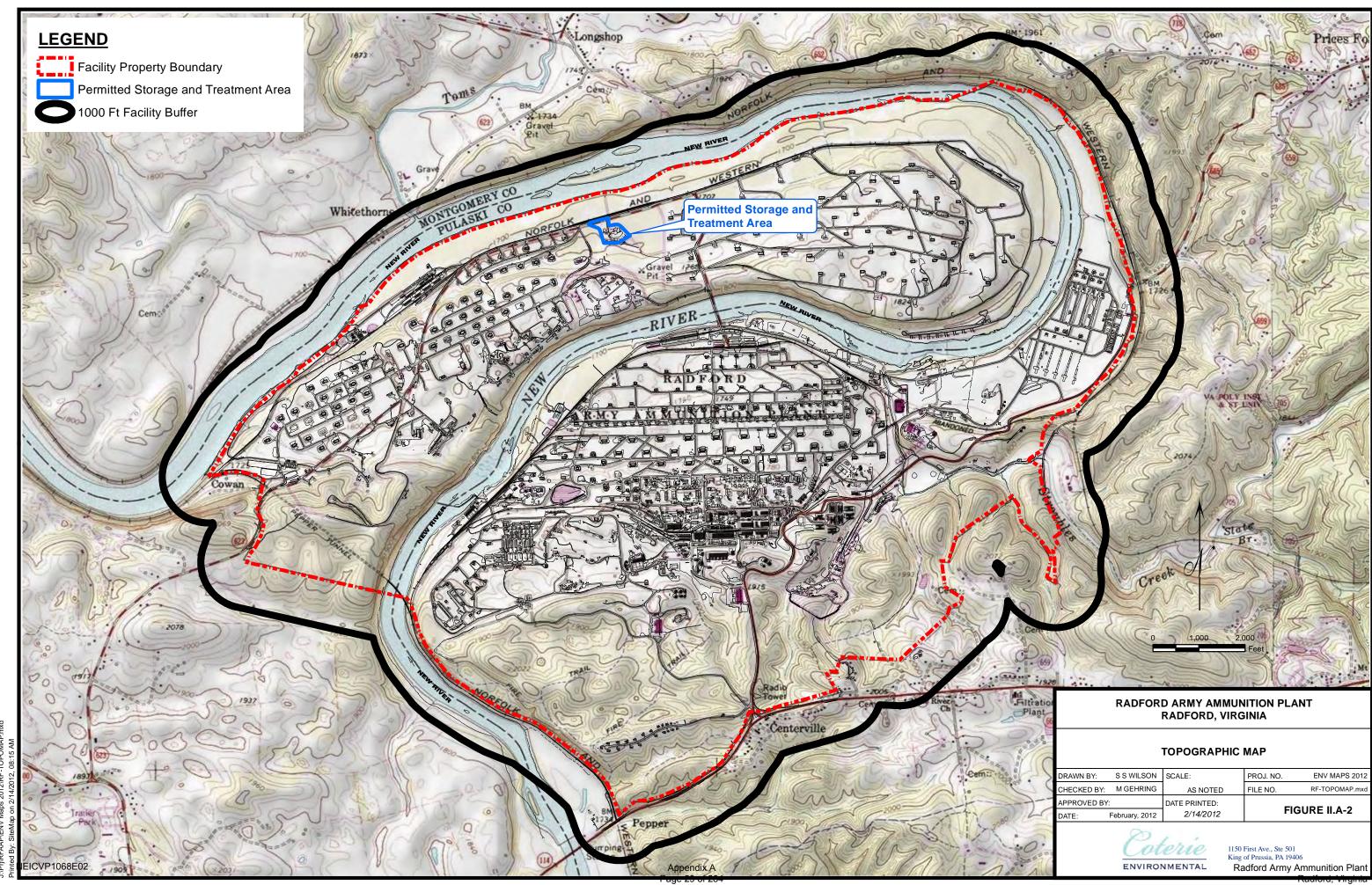
appl. Topographic Map of the Permitted Storage and Treatment Areas

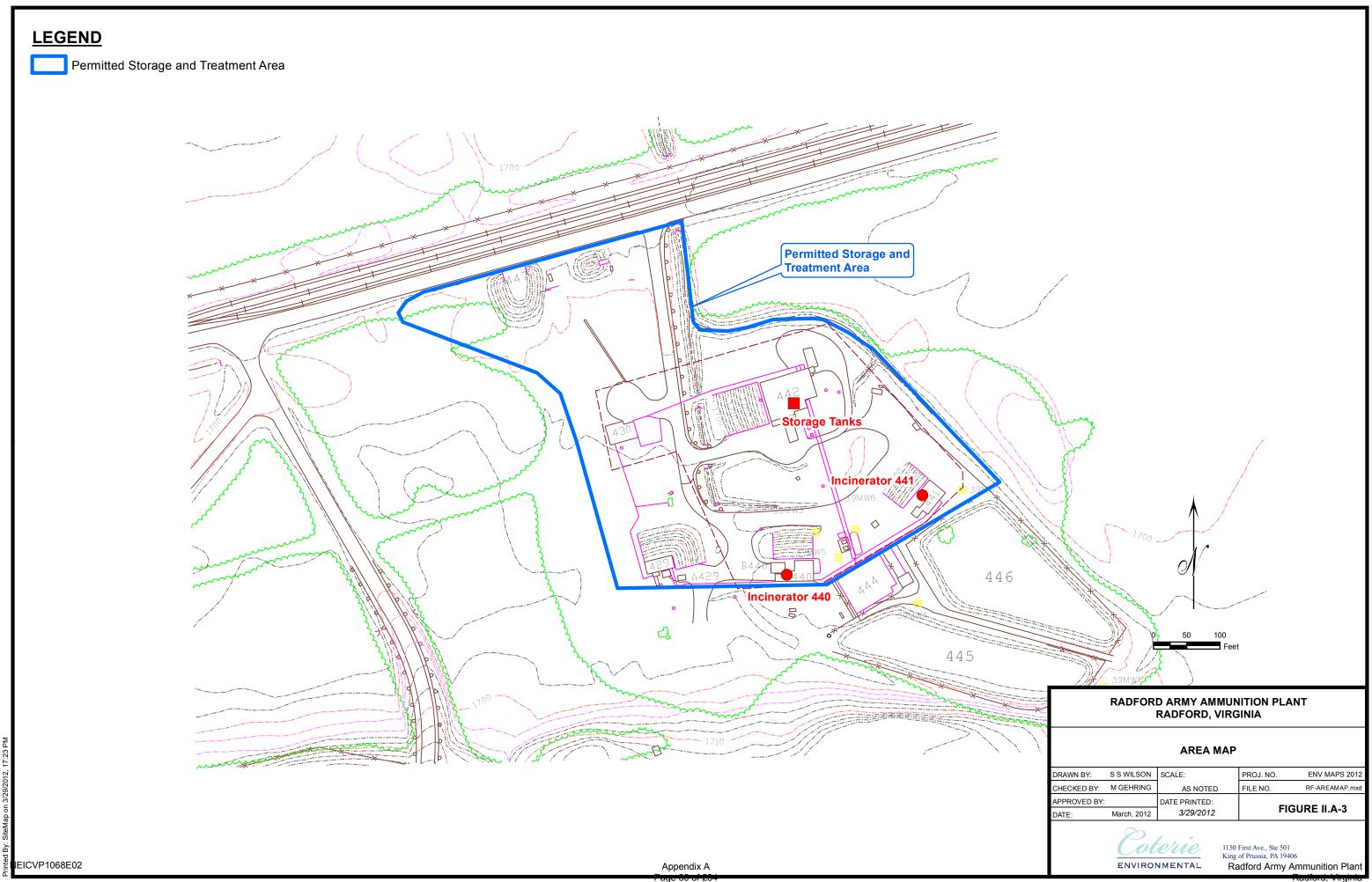
Figure II.A-4 — Figure AA 4 from Sept. 2000 permit appl. Land Use and Land Cover Characteristics

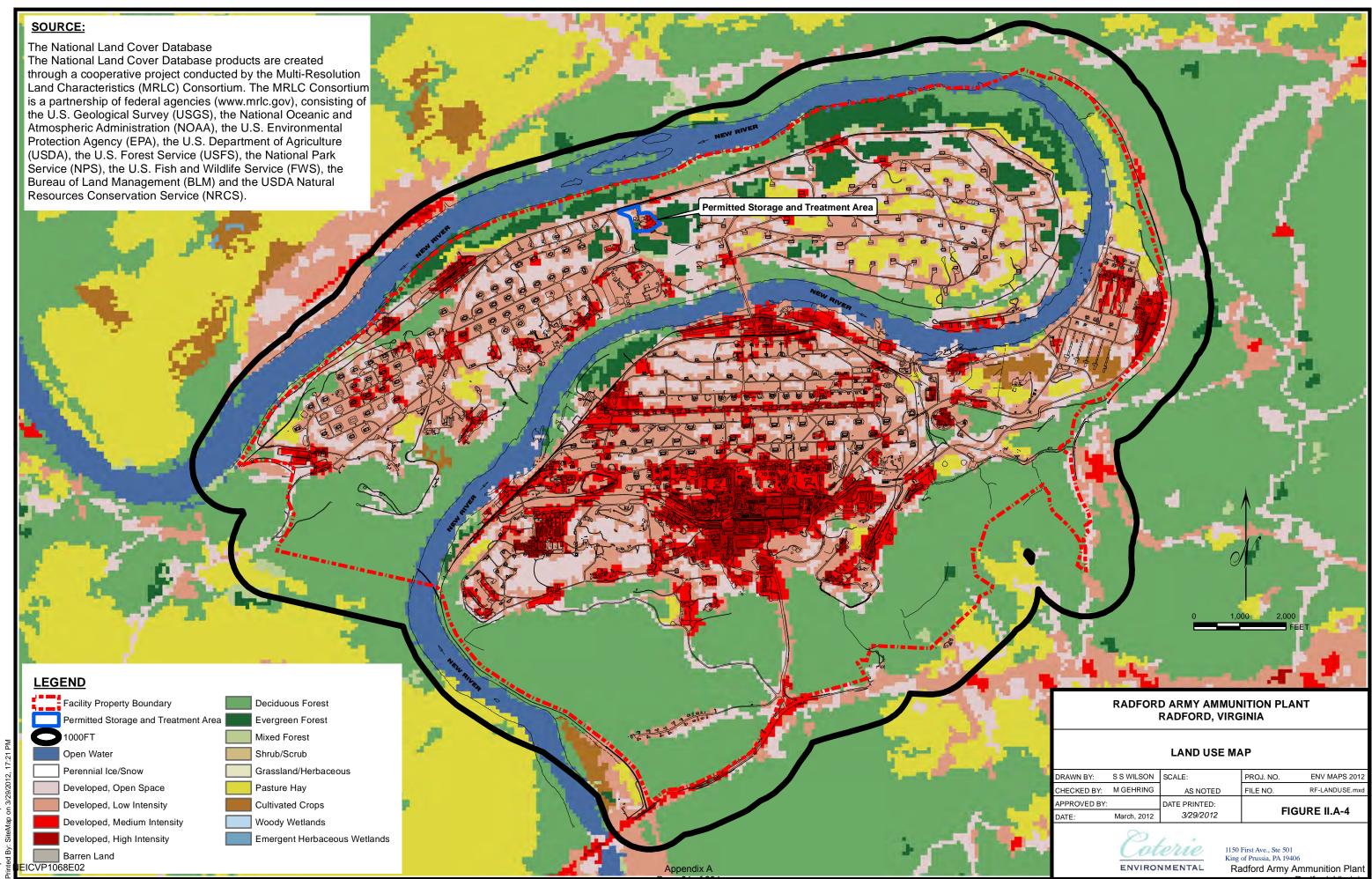
Figure II.A-5 — Figure AA-5 from Sept. 2000 permit appl. Flood

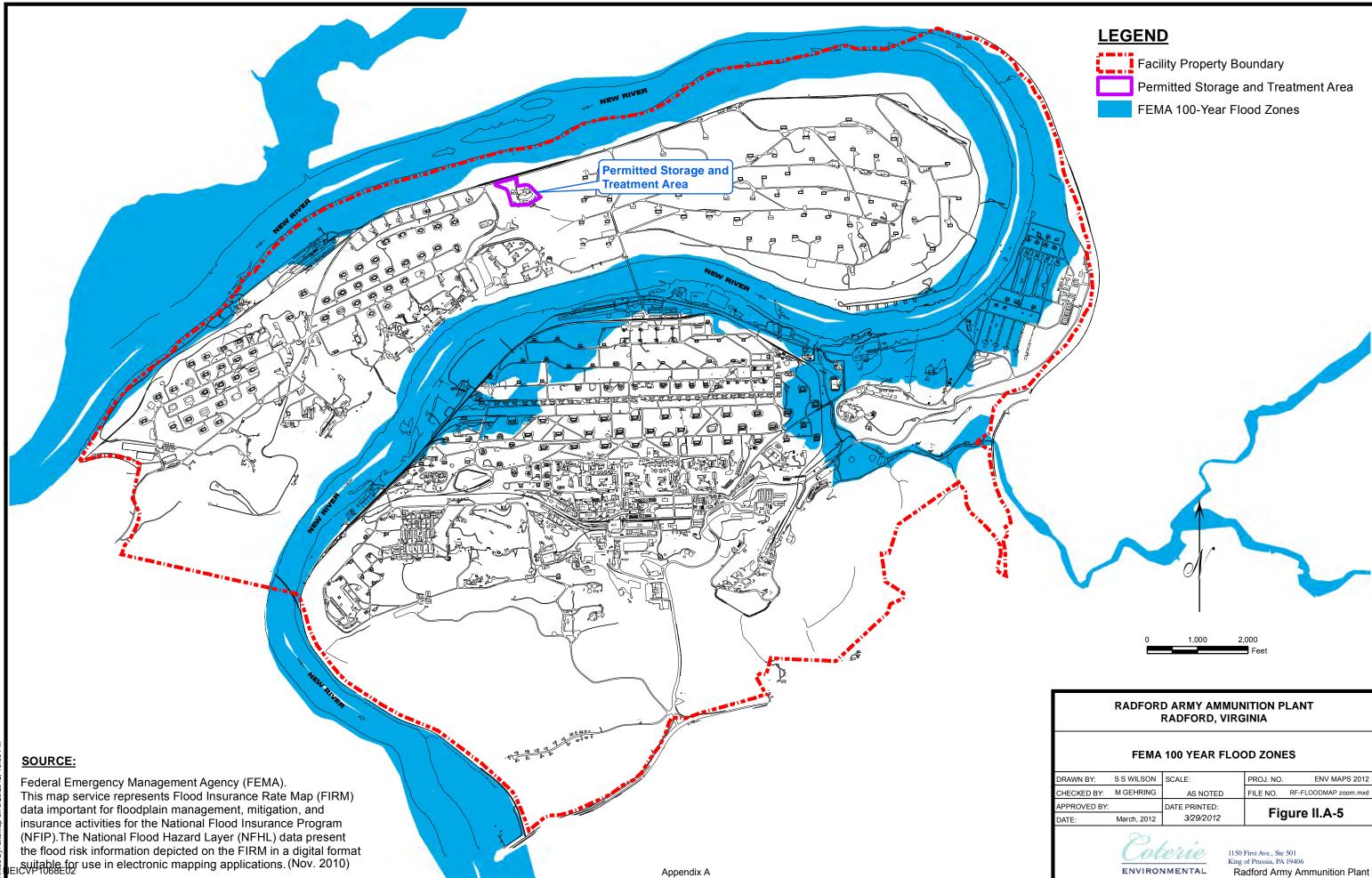
Figure II.A-6 Figure 3-5 from HHRAP











ATTACHMENT II.B

WASTE ANALYSIS PLAN

ATTACHMENT II.B - WASTE ANALYSIS PLAN

II.B.1. Waste Characteristics

Those Hhazardous wastes that may be managed at the permitted treatment and storage areas or the incinerator are waste propellants-energetic materials and spill "clean-up" residues generated at the Radford Army Ammunition Plant (RFAAP) by either the contracted operator (the Permittees) or one of the RFAAP tenant organizations, or waste energetic materials generated by the Permittees or tenants at the nearby New River Unit (NRU). The NRU is under the same management and control as the RFAAP, but is not adjoined to the contiguous property defined as the RFAAP. No wastes generated outside of the RFAAP or the NRU will be received, stored, or treated at the permitted storage and treatment area.

The managed wastes which are hazardous due to their ignitability (D001), or reactivity (D003), and/or toxicity for certain metals and organics. Only hazardous wastes, which are consistent with the requirements of the facility's RCRA Permit and this Waste Analysis Plan will be stored, treated, or incinerated. No wastes generated outside of RFAAP will be received, stored, or treated at the permitted treatment and storage areas. Only wastes generated at RFAAP by the Permittees may be stored or treated at the permitted treatment and storage areas.

Only those hazardous wastes that are within the specifications of the facility's RCRA Permit and this Waste Analysis Plan will be managed Wastes managed in accordance with the facility's RCRA Permit will be limited to the following in the permitted storage and treatment area:. Neither radioactive wastes, nor mixed radioactive and hazardous wastes, nor wastes that are listed pursuant in 9 VAC 20-60-261, incorporating 40 CFR 261.31, 32, and 33 by reference, will be managed at the permitted treatment and storage areas.

In general, the managed wastes include

<u>Ww</u>astes <u>which that</u> exhibit <u>only</u> the following hazardous characteristic(s);

- i. Reactivity (hazardous waste number D003) as specified in 9 VAC 20-60-261, incorporating 40 CFR 261.23 by reference; or
- ii. Reactivity (hazardous waste number D003) as specified in 9 VAC 20-60-261, incorporating 40 CFR 261.23 by reference, and the characteristic of tToxicity, as specified in 9 VAC 20-60-261, incorporating 40 CFR 261.24 by reference, for one or more of the following contaminants:
 - a) Arsenic (hazardous waste number D004);
 - b) Barium (hazardous waste number D005):

Attachment II.B II.B-1

Comment [RFAAP1]: Note – the addition of NRU waste to the allowable wastes is a new request included in this permit application. These wastes are substantially similar to those managed under the existing permit. (No new codes or waste groups are required to facilitate their treatment at this time). Changes have been made throughout this attachment to reflect this request.

Comment [RFAAP2]: Note – there are no new waste codes being added with this permit application. We are simply updating the text to be consistent with the codes maanaged and the information previously specified elsewhere in this section.

- c) Cadmium (hazardous waste number D006);
- d) Chromium (hazardous waste number D007);
- e) Lead (hazardous waste number D008); and
- f) Mercury (hazardous waste number D009);
- g) Selenium (hazardous waste number D010);
- h) Silver (hazardous waste number D011); and
- ---2,4-Dinitrotoluene (hazardous waste number D030).--
- i) Barium (hazardous waste number D005)
- iii. Ignitability (hazardous waste number D001) as specified in 9 VAC 20-60-261, incorporating 40 CFR 261.21 by reference. Ignitable wastes are limited to clean up residue of propellant ingredients. Ignitable wastes are mixed with sawdust and are not a liquid when brought to the permitted treatment and storage area.
- Wastes which are not listed pursuant in 9 VAC 20 60 261, incorporating 40 CFR 261.31, 32, and 33 by reference; and
- Wastes which are one of the following:
 - Off-specification propellants and propellant intermediates, generated at RFAAP:
 - Liquid wastes, consisting of water and diethylene or triethylene glycol;
 - Load, assemble and pack waste, consisting of energetic materials from assembling cartridges
 - Specialty product wastes containing propellant with nitrocellulose, nitrate esters, nitroguanidine, solid explosives, and one of the following combinations of additional materials:
 - 40 CFR 261, Appendix VIII constituents (D003)
 - 40 CFR 261, Appendix VIII constituents, chlorides and/or perchlorates (D003)
 - 40 CFR 261, Appendix VIII constituents and/or metals (D003, D004-D010)
 - Other miscellaneous waste, described in Appendix II.B-1 Table I, as one of the following:
 - Ignitable and reactive liquids in sawdust (D001, D003)
 - Propellant laboratory waste (D003, D008, D030, D004)
 - Pit cotton (Waste Nitrocellulose)
 - Dinitrotoluene and Trinitrotoluene Wastes from manufacturing that are not listed wastes

Attachment II.B II.B-2

A specific list of those wastes permitted for management in the incinerator area is provided in Table I of Appendix II.B-1. As shown in the table, The wastes identified above are classified into one of 19 different waste groups that are described in detail in Section II.B.2. described in more detail in Section II.B.2 and in Tables I and II of Appendix II.B 1. Tables I and II delineate the Group numbers for the respective wastes.—These Group-group numbers were assigned as the information on the waste Group-groups s was collected. There is no significance to the order of the discussion in Section II.B.2 below and or the Group-group numbers in Appendix II.B-1, Tables I and II Table I of Appendix II.B-1.

Neither radioactive wastes nor mixed radioactive and hazardous wastes will be stored or treated at the permitted treatment and storage areas.

II.B.2. Waste Composition and Characterization

The composition of the waste propellantenergetic waste mixtures generated and fed to the incinerators varies due to changes in the production schedule. Off-specification propellants and propellant intermediates, dinitrotoluene (including production intermediates), liquid wastes, load, assemble and pack waste, specialty product waste, and other miscellaneous wastes, as presented in Table I of Appendix II.B-1, are the categories of wastes which may be stored or treated. However, all of the wastes can be categorized into one of the

Appendix II.B-1 Table I provide 19 Groups groups of waste identified in Table I of Appendix II.B-1s. This table identifies each waste by group number and specifies the RCRA hazardous waste codes that may be applicable to that group. Information on the 40 CFR Part 261 Appendix Wastes that are stored or treated fit into one of these Groups. Waste materials from all 19 Groups may be treated by incineration. Appendix II.B-1 Table II, Profiles of RFAAP Waste Groups, presents the constituents that may be found in each of the 19 Groups and provides the percentage range of waste constituents that may be in the 19 Groups.VIII constituents that may be present in each group is provided in Table II of Appendix II.B-1.

If the Permittees wish to manage waste whose formulation is not consistent with one of the Groupgroups identified in Table-Table I of Appendix II.B-1 of Appendix II.B-1 of this Waste Analysis Plan, the Permittees will submit a request for permit modification.

II.B.2a. Off-Specification Propellant and Propellant Production Intermediates

Table Table I of Appendix II.B-1 of Appendix II.B-1 identifies nine Groups groups that contain single, double, or triple base propellants and propellant intermediates. These three categories of propellant differ in their primary energetic constituents, which are as follows:

- Single base propellants contain nitrocellulose;
- Double base propellants contain two energetics, typically nitrocellulose and nitroglycerin; and
- Triple base propellants contain three energetics, typically nitrocellulose, nitroglycerin, and nitroguanidine.

Primary Category	Primary Constituent(s)
Single Base	Nitrocellulose
Double Base	Nitrocellulose, nitroglycerinenitroglycerin
Triple Base	Nitrocellulose, nitroglycerinenitroglycerin,
	nitroguanidine

These nine groups. These categories have been further divided into a total of nine waste Groups, based the primary propellant category and on other waste constituents that distinguish them from each other. As an example, Group 8, identified as a single base propellant with nitrocellulose, is distinguishable from Group 9, which is a single base propellant with nitrocellulose and dinitrotoluene. The nine Groups groups are as shown in Table I in Attachment II.B, Appendix II.B-1÷.

Group 7 Single base propellants with nitrocellulose and lead (D003, D008)

Group 8 Single base, propellants with nitrocellulose (D003)

Group 9 - Single base propellants with nitrocellulose and dinitrotoluene

(D003, D030)

Group 10 Double base propellants with nitrocellulose and nitrate esters

(D003)

Group 11 - Double base propellants with nitrocellulose, nitrate esters, and perchlorate salts (D003)

Group 12 Double base propellants with nitrocellulose, lead, and nitrate esters

(D003, D008)

Group 13 Double base propellant with nitrocellulose, nitrate esters, and solid explosives (D003)

Group 14 Triple base propellant with nitrocellulose, nitrate esters and nitroguanidine (D003)

Group 16 Single base propellant with nitrocellulose, dinitrotoluene and lead (D003, D008, D030)

II.B.2b. <u>Liquid Wastes with Glycol</u>

The waste streams containing diethylene glycol (DEG) and triethylene glycol (TEG) are generated from the washing of nitroglycerin (NG) and diethylene glycol dinitrate (DEGDN) with water to remove the desensitizing agents DEG and TEG from the NG and DEGDN. These waste streams are non-hazardous. They contain water (80-85%) and glycol (15-20%) and are-may be used in the production of slurry batches for incineration in Tanks T-1A and T-1B. The waste Groupgroups for these streams are identified in Table I of Appendix II.B-1 as Group 5 (TEG Water) and GroupGroup 6 (DEG Water). The streams are used in slurry makeup to produce a feed of glycol wastewater and waste propellant, which is then incinerated.

II.B.2c. Load, Assemble, and Pack Waste

The load, assemble, and pack waste consists of Eenergetic wastes is-generated when ammunition cartridges are assembled. The waste consists of materials that are placed in the cartridges such as HMX, RDX, and propellants. These wastes are identified in Appendix II.B-1 Table I as GroupGroup 15.—.

The finished products from the load, assemble, and pack operations, including the Ooff-specification projectiles that contain-with energetic materials, cases with primers, and primers shall not be treated or stored at the permitted tanks and incinerators.

II.B.2d. Specialty Products Waste

The specialty products waste Groupgroups (17, 18, and 19) contain propellant energetic materials such as with nitrocellulose, nitrate esters, nitroguanidine, solid explosives, and 40-CFR-261, Appendix VIII constituents, and are generated in small quantities. The specialty products wastes identified as GroupGroup 18 on Table I of Appendix II.B-1 also contain chlorides or perchlorates. The specialty products wastes identified as GroupGroup 19 on Table I of Appendix II.B-1 contain metals in addition to the other materials contained in specialty product wastes.

. The volume of specialty product waste is less than 5,000 pounds per year.

II.B.2e. <u>Miscellaneous Wastes</u>

The miscellaneous wastes listed in Table I of Appendix II.B-1 include:

- a) Ignitable and reactive liquids in sawdust;
- b) Propellant laboratory waste:
- c) Pit cottonWaste nitrocellulose; and
- <u>d)</u> Dinitrotoluene and <u>Trinitrotoluene trinitrotoluene Wastes wastes</u> from manufacturing that are not listed wastes.

Attachment II.B

II.B-5

The term ignitable and reactive liquids in sawdust refers to a-wastes containing a nitrate ester (any liquid explosive, *i.e.*, nitroglycerinenitroglycerin, diethylene glycol dinitrate), triacetin, acetone, alcohol, or ether, and sawdust. The ignitable or reactive liquids with sawdust typically originate from cleaning operations or spills in the production area. Triacetin is used to desensitize the reactive liquids. These wastes are identified as Group 1 wastes

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The propellant laboratory waste <u>included in Group 2</u> consists of waste materials from <u>Quality quality Assurance assurance</u> and <u>Quality quality Control control</u> testing. <u>The Ppropellant laboratory waste is a variable mixture of reactive materials and reagent chemicals used to perform laboratory analysis.</u>

Waste nitrocellulose, a material known as "pit cotton", is non-reusable scrap from production operations, and scrap from the nitrocellulose dehydrating press operations. All such nitrocellulose is generated and generally stored-accumulated in a water-wet state. In the water-wet state this material is not reactive. These wastes, which are classified as Group 3 wastes, are not hazardous. Only water wet nitrocellulose, which is not a hazardous waste, may be managed at the permitted treatment and storage area as a solid waste.

Off specification dinitrotoluene may result from the manufacture of commercial dinitrotoluene at the facility. The manufacturing process is not currently operational. Prior to future operation, RFAAP will evaluate the manufacturing process for compliance with the hazardous waste regulations and submit the results to the Department of Envirionmental Quality for approval.

II.B.3. Waste Storage Accumulation and Handling

Waste materials from the 19 waste Groupgroups that are to be treated in the incinerators or open burned are stored managed in less than 90-day storage/accumulation buildings throughout RFAAP in 20 gallon tubs. These tubs of waste are retrieved by incinerator personnel and transported to the Grinder Building, where they are prepared for incineration or to the Open Burning Grounds, where they are prepared for open burning. The frequency of waste pickup varies according to production schedules, occurring as often as daily, however in most cases weekly. All hazardous waste is retrieved, incinerated, or burned, at a minimum, before the 90-day accumulation storage period expires.

Each container of waste managed in the permitted storage and treatment area is accompanied by an internal manifest sheet that documents the generator of the waste (the Permittee, a RFAAP tenant organization, or the NRU), the point of

origin of the waste, the specific type of waste (*e.g.*, type of energetic or waste mixture), and the date on which the waste was generated. Prior to transporting the waste to the permitted storage and treatment area, the waste handler inspects the waste to ensure that it matches the characterization provided on the internal manifest form and to make sure that it fits into one of the 19 categories of waste permitted for treatment in the incinerators.

II.B.4. Waste and Residue Sampling

Alliant Ammunition and Powder Company, LLC, the permitted operator of the treatment and storage facilities, has prepared a waste sampling plan to help ensure collection of representative samples for analysis. The intent of the sampling plan is to provide representative data to maintain compliance with the state and federal solid and hazardous waste regulations. All sampling will be conducted in accordance with the facility's sampling and analysis plan and maintained as part of the Facility Operating Record. Two types of sampling are conducted to comply with this Permit: waste sampling and residue sampling. This section provides a description of the techniques employed for both.

II.B.4a. Waste Sampling

Samples for characterizing the managed wastes are collected on a daily basis, Monday through Friday during the daylight shift, as waste is loaded onto the trolley conveyor in preparation to be ground and incinerated. The operator collects grab samples from tubs of each waste group that is being processed. The grab samples are collected into separate sample containers for each group. Each sample container is labeled with the month, the group number or propellant type, the "composite" notation for sample type, and the sampler's initials. At the end of the month, the operator splits the composite sample for one of the waste groups and numbers the container (this is done to generate a duplicate sample for quality assurance and quality control). A sample number is then affixed to each container and the samples are sent to the laboratory for analysis as required to comply with this Permit.

If DEG or TEG water (Groups 5 and 6) are used for slurry makeup water, samples will be collected daily. At the end of the month, all daily samples of DEG or TEG water will be composited into one sample per group. These composites will then be analyzed as required to comply with this Permit.

To ensure that proper sampling technique is employed, all operators that collect samples of the waste streams will be trained in the sample collection procedure during their initial on-the-job training.

II.B.4b. Residue Sampling

Composite samples of the incinerator residues are collected periodically as required to characterize the wastes for offsite disposal.

II.B.5. Waste Analysis Requirements

All hazardous wastes managed in accordance with the facility's Permit will be subjected to waste analysis pursuant to the Permit and this Waste Analysis Plan prior to being stored or treated managed at the permitted treatment and storage areas. The Permittee maintains the responsibility for sampling and analyzing all wastes managed in the permitted storage and treatment area regardless of whether it was generated by the Permittee, a RFAAP tenant organization, or the NRU.

For each solid or hazardous waste whichthat may be used as a slurry component (see Section II.B.2.) for incineration, a hazardous waste determination will be made in accordance with 9 VAC 20-60-262, adopting 40 CFR 262.11 by reference. At a minimum, the determination will identify:

- i. Whether the waste is radioactive;
- ii. Whether the waste is listed under 9 VAC 20-60-261, adopting 40 CFR 261 Subpart D by reference; and
- iii. Whether the waste is a characteristic hazardous waste in accordance with 9-VAC-20-60-261, adopting 40 CFR 261.20 through 261.24 by reference.

This determination may be made through a combination of process knowledge and laboratory analysis. The results of all hazardous waste determinations will be maintained in the Facility facility Operating operating Recordrecord.

In addition to the hazardous determination for each waste Groupgroup, all wastes stored or treated managed at the facility are tested for compatibility with nitroglycerin (NG) and nitratability when they are first generated. Compatibility on a daily basis is not of concern, as compatibility with other materials is addressed upon generation of the material.

The Ccompatibility testing is performed utilizing a multi-test apparatus methodology, which, when completed, provides the data necessary to determine the compatibility of waste Groupgroups. Compatibility is based on the amount of gas produced by the mixture of explosive and contact material that is in excess of the amount of gas produced by the materials themselves. Test criteria establishes The wastes are deemed "incompatible" if as-a mixed sample of the wastes which generates a specific volume of gas more than the sum of the associated unmixed specimens. Compatibility tests are performed by the on-site laboratory.

Once this initial compatibility testing is completed, no further compatibility analysis is performed while the waste is being generated.

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II.B.5a. <u>Analysis of Waste GroupGroups</u>

Attachment II.B

All waste <u>Groupgroup</u>s are analyzed to determine a profile for the <u>Groupgroup</u>. This analysis is described in more detail below.

Waste Profiling Analysis

At all times an accurate profile of every hazardous waste stored, incinerated, or open burned managed at the permitted treatment and storage areas will be maintained in the Facility Operating operating Recordrecord. A hazardous waste profile will identify the hazardous constituents and characteristics necessary for proper designation and management of the waste stream. The profile will also include concentrations of all 40 CFR 261 Appendix VIII (adopted by reference in 9 VAC 20-60-261) constituents in that waste.

Each hazardous waste profile will include or consist of:

- a. Existing published or documented data on the hazardous waste or on waste generated from similar processes. The use of existing published or documented data will include confirmation by the generator that the process generating the hazardous waste has not significantly changed; and/or
- b. Laboratory analysis of the waste stream consisting of chemical, physical, and/or biological analyses using appropriate tests from the EPA document <u>SW-846 Test Methods for Evaluating Solid Waste</u>, 3rd Edition, 1986, as updated, or by facility standard operating methods that achieve the performance specifications specified in the equivalent SW-846 method.

Every waste profile will be reviewed at least annually in order to confirm that it still accurately represents the waste stream. A waste stream will be re-profiled whenever the Permittees have reason to believe that the process or operation generating the hazardous waste has significantly changed.

II.B.5b. Analysis of Waste Residues and Other Materials

Incinerator ash, which consists of the solids that accumulate at the kiln breeching, evaporative cooler, and fabric filter, is accumulated in 55-gallon DOT approved containers. Ash and packing media, generated from the precooler and scrubber on an infrequent basis is also accumulated in 55-gallon DOT approved containers and handled the same way as the incinerator ash. A composite sample is collected for ash accumulated in this manner. This composite sample and is analyzed for reactivity by methods specified in Appendix II.B-3-2 and for toxicity by the Toxicity Characteristic Leaching Procedure (TCLP), SW-846 Method 1311. If the ash exhibits a characteristic for reactivity it will be taken to the Open Burning Ground for treatment. If the ash does not exhibit a characteristic for reactivity but is a hazardous waste according to 9 VAC 20-60-261.24, then it will be managed as a hazardous waste in accordance with all applicable requirements of 9 VAC

20-60. If the ash does not exhibit a characteristic of a hazardous waste it may be managed as a solid waste in accordance with all applicable requirements of 9 VAC 20-80-10 *et seq*.

Incinerator scrubber liquid drains from the gas precooler and packed bed liquid scrubber and is collected in the neutralization tank. In the neutralization tank, plant water is added as necessary for volume make-up and the solution pH is adjusted by the addition of caustic. Effluent from the neutralization tank returns directly to the gas precooler and packed bed liquid scrubber. Effluent from the neutralization tank also flows to the brine tank and subsequently to the evaporative cooler. The incinerator scrubber liquid is not discharged under normal operating conditions; but rather is recirculated throughout the system. In the event that the scrubber water is not recirculated through the system, it will be collected and transferred to the on-site wastewater treatment facility and disposed of according to the VPDES permit or used as makeup water for grinds.

II.B.5c. Quality Assurance and Quality Control

All sampling and analyses performed in accordance with this Waste Analysis Plan will, at a minimum, achieve all performance specifications specified in the equivalent SW-846 methods and Tables 2-5, as appropriate. Records of specific analytical methods utilized from SW-846 or standard facility operating methods and procedures and appropriate QA/QC documentation will be maintained at RFAAP with the results of all analyses.

Appendix II.B-1

Waste **Group** Composition Data

Attachment II.B

TABLE I
WASTE GROUPS BURNED AT THE RFAAP INCINERATORS

Group No.	Description	Defining Characteristics	RCRA Waste Codes 1
1	Miscellaneous Waste	Ignitable and reactive liquids and sawdust D001, D003	D001, D003
2	Miscellaneous Waste	Propellant Laboratory Waste D003, D008, D030, D004	D001, D003, D004-D011, D030
3	Miscellaneous Waste	Pit Cotton (Waste Nitrocellulose) Solid Waste	<u>N/A</u>
4	Miscellaneous Waste	Dinitrotoluene and Trinitrotoluene Wastes from manufacturing that are not listed wastes D030	<u>D003, D030</u>
5	Liquid Waste	Water Containing Triethylene Glycol Solid Waste	<u>N/A</u>
6	Liquid Waste	Water Containing Diethylene Glycol Solid Waste	<u>N/A</u>
7	Single Base Propellants	Propellant with Nitrocellulose and Lead D003, D008	<u>D001, D003, D008</u>
8	Single Base Propellants	Propellant with Nitrocellulose D003	<u>D001, D003</u>
9	Single Base Propellants	Propellant with Nitrocellulose and Dinitrotoluene D003, D030	D001, D003, D030
10	Double Base Propellants	Propellant with Nitrocellulose and Nitrate Esters D003	D001, D003
11	Double Base Propellants	Propellant with Nitrocellulose, Nitrate Esters and Perchlorate salts D003	D001, D003
12	Double Base Propellants	Propellant with Nitrocellulose, Nitrate Esters and Lead D003, D008	D001, D003, D008
13	Double Base PropellantsEnergetics with solid explosives	Propellant with Nitrocellulose, Nitrate Esters and or Solid Explosives D003	D001, D003
14	Triple Base Propellants	Propellant with Nitrocellulose, Nitrate Esters and Nitroguanidine D003	D001, D003
15	Load, Assemble, & Pack Waste	Energetic materials from manufacturing cartridges D003	D001, D003
16	Single Base Propellants	Propellant with Nitrocellulose, Dinitrotoluene, and and/or Lead D003, D008, D030	D001, D003, D008, D030
17	Specialty Products Waste	Propellant Energetics with Nitrocellulose, Nitrate Esters, Nitroguanidine, Solid Explosives, or Appendix VIII ¹ -VIII ² Constituents	D001, D003, D004-D010, D030

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		D003	
18	Specialty Products Waste	Propellant Energetics with Nitrocellulose, Nitrate Esters, Nitroguanidine, Solid Explosives, and Appendix VIII ¹ Constituents, Chlorides, or Perchlorates	D001, D003, D004-D010, D030
19	Specialty Products Waste	Propellant Energetics with Nitrocellulose, Nitrate Esters, Nitroguanidine, Solid Explosives, and Appendix VIII ⁺ Constituents, or Metals D003, D004-D010	D001, D003, D004-D010, D030

^{1.} Codes shown represent those RCRA waste codes that the waste may exhibit. Not all of the specified codes may apply to every canister of waste treated within this group.

2. 40 CFR 261, Appendix VIII

Appendix II.B-1 Attachment II.B

PROFILES OF RFAAP WASTE GROUPS PRESENTED IN RANGES OF COMPOSITION (wt. %)APPENDIX VIII CONSTITUENTS PRESENT IN RFAAP WASTES (wt%)

G 44 4	GRP	GRP	GRP	GRP	GRP	GRP	GRP	GRP	GRP	GRP	GRP	GRP	GRP	GRP	GRP	GRP	GRP	GRP	GRP
Constituent	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
D001																			
Acetone	<20	€5								<5				0 7	€5				
Alcohol	<20	€5						0 26	0 17	<5				0 11	€5				
Ethanol		€5																	
Ether	<20	⇔						0 74	0 25										
Isopropanol	<20	<5																	
Methanol	<20	⇔																	
1 Methoxy 2 propanol	<20	← 5																	
1-Methoxy-2-propanol-acetate	<20	≪5																	
Methyl chloride	<20	<5																<5	
D003																			
2-Nitratoethyl-nitramine		€5																0 100	
2 Hydroxy methyl 2 methyl 1,3 propanediol trinitrate (TMETN)	<20	€5								0 45	0 45	0 45	0 45	0 45			0 45	0 45	0 45
Ammonium perchlorate		€ 5											0 100		0 100			0 100	

Comment [RFAAP3]: This table was revised to be consistent with other changes made to transition control of incinerator operation from RCRA to HWC NESHAP. The individual constituent feed rates to the incinerator are now regulated under the HWC NESHAP. Therefore, the only relevant constituent details are those required to characterize the waste. This table was revised to show the Appendix VIII constituents in the waste.

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PROFILES OF RFAAP WASTE GROUPS PRESENTED IN RANGES OF COMPOSITION (wt. %)APPENDIX VIII CONSTITUENTS PRESENT IN RFAAP WASTES (wt%)

a	GRP	GRP	GRP	GRP	GRP	GRP	GRP	GRP	GRP	GRP	GRP	GRP	GRP	GRP	GRP	GRP	GRP	GRP	GRP
Constituent	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Butanol	<20	< 5								0 45	0 45	0 45	0 45	0 45			0 45	0 45	0 45
Diethylene glycol dinitrate (DEGDN)	<20	0 45								0 45							0 45	0 45	θ 45
Metriol trinitrate	<20	€5								0 45		0 38.5					0 45	0 45	0 45
N-propanol	<20	€5																	
Nitroglycerin (NG)	<20	0 45								0 45	0 35.5	0 45	15 17	17.0 23.5	42.5 45.5		0 45	0 45	0 45
Nitroguanidine (NQ)		<5															∜	\$	<5
Toluene	<20	<5															<5	<5	<5
Triethylene glycol dinitrate (TEGDN)	<20	⇔								0 45	0 35	0 4 0.6	0 17	0 23.5	42.5 45.6		0 45	0 45	0 45
Cyclonite (RDX)													0 35		0 35		0 50	0 50	0 50
Cyclotetramethylenetetranitramine (HMX)													0 35		0 35		0 50	0 50	0 50
D004-D011																			
Arsenic		<5																	<5
Barium N.O.S		<5																	<5
Lead compounds N.O.S.		<5					1.2					0.8 5.4				0.8 2.0	<5	<5	<5

Comment [RFAAP3]: This table was revised to be consistent with other changes made to transition control of incinerator operation from RCRA to HWC NESHAP. The individual constituent feed rates to the incinerator are now regulated under the HWC NESHAP. Therefore, the only relevant constituent details are those required to characterize the waste. This table was revised to show the Appendix VIII constituents in the waste.

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PROFILES OF RFAAP WASTE GROUPS PRESENTED IN RANGES OF COMPOSITION (wt. %)APPENDIX VIII CONSTITUENTS PRESENT IN RFAAP WASTES (wt%)

Constituent								GRP											
Mercury	1	2 <5	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19 <5
Silver		<5																	
40 CFR 261, Appendix VIII																			
2,4 Dinitrotoluene		0 10		5 100					6 <u>0</u> 12 <u>15</u>							5 10	<5	<5	<5
2 Nitrodiphenylamine		< 5								1.5 2.5		0 2.5	0.0 1.2				₩	€	< 5
Antimony sulfide		<5															<5	<5	<5
Chlorobenzene		<5															<5	<5	<5
Chromium nitrate		<5															<5	<5	<5
Dibutyl phthalate		<5				<5		<54 3	<54 3			0 9 10		<u><5</u> 0 3.3	< <u><5</u> 4 3	<u><5</u> <5. θ	<5	<5	<5
Diethyl phthalate		<5								<54 3		0 1 <u>5</u> 0.5					<5	<5	<5
Diphenylamine		<5						<50.4 1.7	<50.5 1.3	<5						0 10	<5	<5	<5
Hexachloroethane		<5															<5	<5	<5
Mercuric chloride		<5															<5	<5	<5
Methylene chloride		<5								0 25							<5	<5	<5

Comment [RFAAP3]: This table was revised to be consistent with other changes made to transition control of incinerator operation from RCRA to HWC NESHAP. The individual constituent feed rates to the incinerator are now regulated under the HWC NESHAP. Therefore, the only relevant constituent details are those required to characterize the waste. This table was revised to show the Appendix VIII constituents in the waste.

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PROFILES OF RFAAP WASTE GROUPS PRESENTED IN RANGES OF COMPOSITION (wt. %)APPENDIX VIII CONSTITUENTS PRESENT IN RFAAP WASTES (wt%)

Constituent	GRP 1	GRP 2	GRP 3	GRP 4	GRP 5	GRP 6	GRP 7	GRP 8	GRP 9	GRP 10	GRP 11	GRP 12	GRP 13	GRP 14	GRP 15	GRP 16	GRP 17	GRP 18	GRP 19
Potassium perchlorate	-	← 5				U	,	U		10	7.8 8.05	12	10	11	10	10	45	45	45
OTHERS																			
Akardit II		← 5								0 1									
Aluminum		⇔								0 1.50		0 1.5							
Aluminum magnesium alloy		< 5																	
Antioxidant		<5																	
Benzene carboxylic acid		<5																	
Black copper oxide (cupric oxide, CuO)		₩																	
Boric acid		\$																	
Butyl stearate		< 5							< 5										
Candella wax		€5								0.1 0.2		0.2			0 0.2				
Carbolae		⇔																	
Carbon black		€5						0.4		0.05 0.5	0.60 1.2	0.05		0.1	0.1 0.3				
Cellulose acetate		<5								←5									

Comment [RFAAP3]: This table was revised to be consistent with other changes made to transition control of incinerator operation from RCRA to HWC NESHAP. The individual constituent feed rates to the incinerator are now regulated under the HWC NESHAP. Therefore, the only relevant constituent details are those required to characterize the waste. This table was revised to show the Appendix VIII constituents in the waste.

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PROFILES OF RFAAP WASTE GROUPS PRESENTED IN RANGES OF COMPOSITION (wt. %)APPENDIX VIII CONSTITUENTS PRESENT IN RFAAP WASTES (wt%)

Constituent								GRP											
Constituent	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Charcoal		< 5						9 10											
Chlorowax		∜																	
Chlorowax 70		<5																	
Copper carbonate		<5																	
Copper chromite		<5																	0
Copper oxide (Cu ₂ O)		<5																	
Copper oxychloride		< 5																	
Copper salicylate		⇔										0 2.5							
Cryolite		≪5												0 0.4					
Dextroamphetamine sulfate (dextrine)		← 5																	
Dihydrate, tetrasodium pyrphasate		≪5																	
Di-N-propyl-adipate		<5								0.4		0 3.3							
1,3-Diphenylguanidine		⇔																	
Ethyl centralite		← 5						0.4 0.6	1.0 1.4	0.25 2.0	0 0.9	0 2.3		0 1.6	1.7 2.3				0.60

Comment [RFAAP3]: This table was revised to be consistent with other changes made to transition control of incinerator operation from RCRA to HWC NESHAP. The individual constituent feed rates to the incinerator are now regulated under the HWC NESHAP. Therefore, the only relevant constituent details are those required to characterize the waste. This table was revised to show the Appendix VIII constituents in the waste.

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PROFILES OF RFAAP WASTE GROUPS PRESENTED IN RANGES OF COMPOSITION (wt. %)APPENDIX VIII CONSTITUENTS PRESENT IN RFAAP WASTES (wt%)

~	GRP	GRP	GRP	GRP	GRP	GRP	GRP	GRP	GRP	GRP	GRP	GRP	GRP	GRP	GRP	GRP	GRP	GRP	GRP
Constituent	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Ethyl cellulose		< 5								← 5									
Ethylene-vinyl acetate polymer		<5													<5				
Ferrous ammonium sulfate		<5																	
Graphite		←5					0.10	0 0.4	0 0.4	0.2 0.4		0 0.5		0 0.2	<5				0.30
Herkote		<5								<5									
Hydrocarbon resin		<5																	
Iron		<5																	
Isopropyl acetate		<5																	
Lactoge shellac		<5																	
Laxtose		<5																	
Magnesium		<5																	
Magnesium earbonate		<5																	
Magnesium oxide		<5								0 0.05									
Methyl centralite		€5						0.5 6.0											

Comment [RFAAP3]: This table was revised to be consistent with other changes made to transition control of incinerator operation from RCRA to HWC NESHAP. The individual constituent feed rates to the incinerator are now regulated under the HWC NESHAP. Therefore, the only relevant constituent details are those required to characterize the waste. This table was revised to show the Appendix VIII constituents in the waste.

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PROFILES OF RFAAP WASTE GROUPS PRESENTED IN RANGES OF COMPOSITION (wt. %)APPENDIX VIII CONSTITUENTS PRESENT IN RFAAP WASTES (wt%)

C	GRP	GRP	GRP	GRP	GRP	GRP	GRP	GRP	GRP	GRP	GRP	GRP	GRP	GRP	GRP	GRP	GRP	GRP	GRP
Constituent	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Morpholine		< 5																	
N-butyl acetate		≪5																	
N-butyl stearate							0 3.0		0 3.3										
Nitrocellulose		0 45	0 30				94	14 98	13.0 90	53 80	0 59	48.5 53	18 52	20.5 29.5	50 54	55 85	0 80	0 80	0 80
Orașol blue		<5								<5									
Orașol yellow		<5								<5									
Oxamide		←5											0 5.5						
Perchloric acid		€5																	
Phenolilc resin		∜																	
Phosphorous pentoxide		< 5																	
Polyvinyl chloride		≪5																	
Potassium benzoate		₩																	
Potassium chlorate		₩																	
Potassium hydrogen phthalate		<5																	

Comment [RFAAP3]: This table was revised to be consistent with other changes made to transition control of incinerator operation from RCRA to HWC NESHAP. The individual constituent feed rates to the incinerator are now regulated under the HWC NESHAP. Therefore, the only relevant constituent details are those required to characterize the waste. This table was revised to show the Appendix VIII constituents in the waste.

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PROFILES OF RFAAP WASTE GROUPS PRESENTED IN RANGES OF COMPOSITION (wt. %)APPENDIX VIII CONSTITUENTS PRESENT IN RFAAP WASTES (wt%)

Constituent	GRP	GRP	GRP	GRP	GRP	GRP	GRP	GRP	GRP	GRP	GRP	GRP	GRP	GRP	GRP	GRP	GRP	GRP	GRP
Constituent	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Potassium nitrate		⇔						0 65		0 1.5									0.075
Potassium salts		<5						0 2.2											
Potassium sulfate		<5					0 1.25	0 77	0.1 1.5	<5		0 1.5		0 1.5	<5	0 1.0			
Red gum – N.F.V.		<5																	
Remix		<5								<5									
Rosin		<5																	
Shellac		<5																	
Silicon		<5																	
Sodium acetate		<5																	
Sodium alkyl benzene sulfonates		<5																	
Sodium bicarbonate		<5																	
Sodium carbonate		<5																	
Sodium citrate		€5																	
Sodium dichloro 3 triazinetrione		<5																	

Comment [RFAAP3]: This table was revised to be consistent with other changes made to transition control of incinerator operation from RCRA to HWC NESHAP. The individual constituent feed rates to the incinerator are now regulated under the HWC NESHAP. Therefore, the only relevant constituent details are those required to characterize the waste. This table was revised to show the Appendix VIII constituents in the waste.

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PROFILES OF RFAAP WASTE GROUPS PRESENTED IN RANGES OF COMPOSITION (wt. %)APPENDIX VIII CONSTITUENTS PRESENT IN RFAAP WASTES (wt%)

Constituent	GRP	GRP	GRP	GRP	GRP	GRP	GRP	GRP	GRP	GRP	GRP	GRP	GRP	GRP	GRP	GRP	GRP	GRP	GRP
Constituent	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Sodium methoxide		< 5																	
Sodium oxalate		<5																	
Sodium salicylate		<5																	
Sodium sulfate anhydrous		<5																	
Stearic acid		<5																	
Strontium carbonate		<5																	
Strontium nitrate		<5																	
Sulfur		<5						6 7											
Tetra bromethane		<5																	
Titanium		<5																	
Titanium dioxide		<5								<5									
Triacetin	10 25	€5								0 3.25		0 3.25							
Vinsol		<5								<5									
Ethyl lactate												0 37.8							

Comment [RFAAP3]: This table was revised to be consistent with other changes made to transition control of incinerator operation from RCRA to HWC NESHAP. The individual constituent feed rates to the incinerator are now regulated under the HWC NESHAP. Therefore, the only relevant constituent details are those required to characterize the waste. This table was revised to show the Appendix VIII constituents in the waste.

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PROFILES OF RFAAP WASTE GROUPS PRESENTED IN RANGES OF COMPOSITION (wt. %)APPENDIX VIII CONSTITUENTS PRESENT IN RFAAP WASTES (wt%)

Constituent	GRP 1	GRP 2	GRP 3	GRP 4	GRP 5	GRP 6	GRP 7	GRP 8	GRP 9	GRP 10	GRP 11	GRP 12	GRP 13	GRP 14	GRP 15	GRP 16	GRP 17	GRP 18	GRP 19
Butyl acetate												0 69.8							
Di-normal-propyl-adipate												0 2.0							
Sawdust	57 79			0 95															
Ash	0 57	0.2 4.5	0 0.6	0.2 45	0.7 1.2	0.7 0.8	0.9 2.4	0.2 75.2	0 5.3	0 4.1	0.1 3.1	0.2 9.3		0 1.1	0.2 8.3	0.4 2.5			0.9 1.6
Maximum Theoretical Heat of Explosion (BTU/pound)	110	2350	0	270	0	0	1350	1800	1440	2340	1980	1800	2340	1530	2340	1130	2340	1980	1980

Comment [RFAAP3]: This table was revised to be consistent with other changes made to transition control of incinerator operation from RCRA to HWC NESHAP. The individual constituent feed rates to the incinerator are now regulated under the HWC NESHAP. Therefore, the only relevant constituent details are those required to characterize the waste. This table was revised to show the Appendix VIII constituents in the waste.

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Appendix II.B-2

Reactivity Test Methods

Attachment II.B

Remove this page and insert the following:

Appendix BB-3 from Sept. 2000 permit appl-

Three methods are used to determine reactivity of residue from thermal treatment of reactive wastes.

The first method is performed by the on site laboratory. A composite sample of the residue is analyzed for the presence of propellant. This method provides results to within a detection limit of less than 1%. Hazards Analysis has a proprietary report that tested explosives in soil. If there is less than 10% explosives in a soil matrix the soil will not be reactive for the Gap test or DDT test. Hazards Analysis uses the data from the on site laboratory to make the determination whether the residue is reactive or not reactive.

The second method is to analyze the composite sample using SW 846 Method 8330. Again using the proprietary report Hazards Analysis uses the data to make the determination whether the residue is reactive or not reactive.

The third method is to use the GAP test or DDT test. These tests are described on the next three pages.

The first method is used for waste characterization residue. This testing is Quality checked by using the second method every 4 ash samples. The third method is done annually to confirm the Hazards Analysis report.

REACTIVITY TEST PROCEDURES

DESCRIPTION OF TESTS

GAP TEST FOR SOLID MATERIALS

The experimental arrangement used for the gap test is shown in Figure 2B1. The test sample is contained in a cylinder consisting of a 40.6 cm (16-inch) length of cold-drawn seamless carbon steel "mechanical" tubing 4.76 cm (1.875 inches) in outside diameter with a wall thickness of 0.56 cm (0.219 inch) and an inside diameter of 3.65 cm (1.438 inch). The sample in this test is normally either a gel or a granular solid at room temperature that is loaded to the density attained by tapping the cylinder until further settling becomes imperceptible. The bottom of the cylinder is closed with two layers of 0.0076-cm (0.003-inch) thick polyethylene sheet tied on with gum rubber bands and polyvinyl chloride electrical insulating tape. The sample is subjected to the shock wave generated by the detonation of a-two cast pentolite density 1.65 g/cm³ (50/50 pentaerythritol tetranitrate PETN/TNT) pellet 5.08 cm (2 inches) in diameter and 5.082.54 cm (2 1 inches) thick. The pellets may be eitherwill be in direct contact with the bottom of the sample tube ("zero gap"), "). or separated from it by a cylinder of material that provides shock attenuation (see below). As applied in Test Series 1, this test uses the zero-gap mode. The pentolite pellets are is initiated by a U.S. Army Engineers special detonator having a base charge of 0.935 gram (14.4 grains) of the PETN and a primary charge of 0.35 gram (5.4 grains) of diazo dinitrophenol which is butted against the bottom surface of the pentolite pellets and held in place by a cylinder or cork. Instrumentation consists of a continuous rate probe made of a thin aluminum tube with an inner diameter of 0.051 cm (0.02 inch) and a wall thickness of 0.0038 cm (0.0015 inch) with an axial enamel-coated resistance wire of 0.0078-cm (0.0031-inch) diameter, having a resistance of 3.0 ohms/cm (7.52 ohms/inch). The outer tubing is crimped against the inner wire at the lower end, forming a resistor. When this assembly is inserted in a medium that transmits a shock wave, the outer wall crushes against the inner wire as the wave moves up the tubing, shortening the effective length and changing the resistance. If a constant current (usually 0.06 ampere) is made to flow between the outer and inner conductors, the voltage between them is proportional to the effective length and can be recorded as a function of time using an oscilloscope. The slope of the oscilloscope trace is thus proportional to the velocity of the shock wave.

<u>Criteria</u>. Results of this test are considered to be positive if a stable propagation velocity greater than 1.5 km/sec is observed. Additional diagnostic information is provided by a mild steel witness plate 15.24 cm (6 inches) square and 0.3175 cm (0.125 inch) thick, mounted at the upper end of the sample tubing and separated from it by spacers 0.16 cm (0.063 inch) thick. In the original version of this test, the witness plate was 0.952 cm (0.175 inch) thick, but in the application of this test to low density, low energy materials., i.e., marginally explosive granular solids, it was found that detonation in many of these materials could not punch a hole through the plate (the desired indication of a positive result). With some materials, even the thinner plate is not punched through (benzoyl peroxide is an example), but the above thickness represents the

best compromise that could be found. (If the plate is made too thin, even a non-reactive shock wave generated by the pentolite booster in the sample material can punch the plate, generating false positive results.) A hole punched cleanly through the plate is an indication for a positive result.

A third source of diagnostic information is the fragmentation of the sample tube. The results of the test are considered to be positive only if the tube is fragmented along its entire length. The fragments range, depending on the material tested, from a few long strips to nearly a hundred small fragments; bulging, cracking, or "banana-peeling" of the acceptor is not considered a positive result.

In most cases, the results of the above three diagnostic methods agree. In some they do not, particularly with low-energy, low-density materials, e.g., benzoyl peroxide, in which the witness plate is not punched through, but the tube is fragmented; also with certain propellants, the witness plate is punched, but little damage is done to the tube, evidently indicating a localized explosion at the upper end of the tube. In such cases, since there are essentially three criteria (witness plate, tube fragmentation, and rate probe), the result is assessed on the basis of the two criteria that agree; i.e., if any two criteria indicate a detonation, the result is considered positive, but not so if only one indicates a detonation. Some case of doubtful propagation can also be resolved by using a longer sample tube.

Deflagration/Detonation Transition (DDT) Test DDT Test

The experimental arrangement for the DDT test is shown in Figure-4<u>B2</u>. The sample of the material to be tested is contained in a 45.7-cm (18-inch) length of 3-inch diameter schedule 80 carbon steel pipe with inside diameter of 7.37 cm (2.9 inches) and wall thickness of 0.75 cm (0.30 inch), capped at both ends with "3000 pound" forged steel pipe caps.

The sample is subjected to the thermal and pressure stimulus generated by an igniter consisting of a mixture of 50 percent RDX and 50 percent grade FFF $_g$ black powder located at the center of the sample vessel. The igniter assembly consists of a cylindrical container 2.06 cm (0.81 inch) in diameter and of variable length, which is made from 0.0254 cm (0.01 inch) thick cellulose acetate held together by two layers of nylon-filament-reinforced cellulose acetate tape. The length of the igniter capsule is 0.32 cm (0.125 inch) for each gram of igniter material. The igniter capsule contains a small loop formed from a 2.54 cm (1-inch) length of nickel-chromium alloy resistance wire 0.03 cm (0.012 inch) in diameter having a resistance of 0.343 ohms. This loop is attached to two insulating copper tinned lead wires 0.066 cm (0.026 inch) in diameter; the overall wire diameter including insulation is 0.127 cm (0.05 inch). These lead wires are fed through small holes in a brass disc approximately 1 cm (0.4 inch) in diameter and 0.08 cm (0.03 inch) thick, which is soldered to the end of a 23-cm (9-inch) length of "1/8-inch" steel pipe having a diameter of 1.03 cm (0.405 inch); this pipe is threaded to the other end and screwed into a threaded hole on the inside of one of the pipe caps. This pipe supports the igniter capsule and

serves as channel for the igniter wires. The igniter is fired by a current of 15 amperes obtained from a 20-volt transformer.

<u>Criteria</u>. The criterion currently used in the interpretation of this test is that for a positive result either the pipe or at least one of the end caps be fragmented into at least two distinct pieces, i.e., results in which the pipe is merely split or laid open or in which the pipe or caps are distorted to the point at which the caps are blown off are considered to be negative results. Although it may be argued that a small number of fragments does not indicate the development of a detonation, it at least indicates a very rapidly rising pressure which in a larger sample could lead to development of detonation.

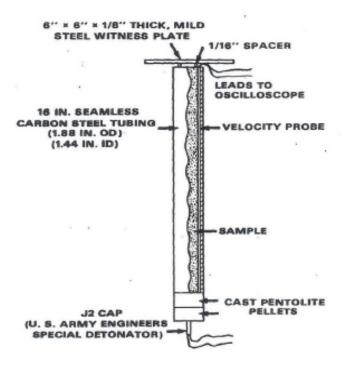


Figure 2B1. Experimental arrangement for zero gap test

Source: U.S. Bureau of Mines, Department of the Interior

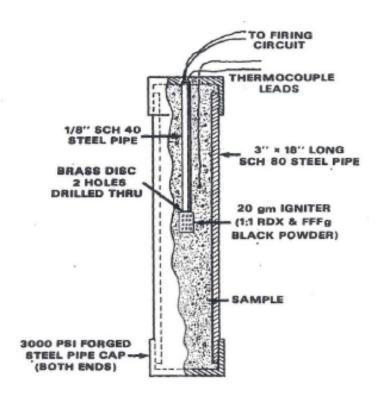


Figure 4B2. Experimental arrangement for deflagration-detonation transition test

Source: Hercules Incorporated (Radford Army Ammunition Plant

ATTACHMENT II.C

INSPECTION SCHEDULE

ATTACHMENT II.C – INSPECTION SCHEDULE

Comment [RFAAP1]: Most of the changes to this section involve reorganization of information for clarity rather than omission or substantial revision of requirements. Some non-regulatory based inspections have been removed.

II.C.1. General Inspection Requirements

Inspections function as a preventative measure to help ensure safe operations and to identify potential problems before they can become serious problems. The permitted treatment and storage area will be inspected as specified in this Inspection Schedule. Inspections are performed by trained personnel to identify equipment malfunctions, structural deterioration, and leaks or discharges that could release hazardous constituents to the environment or threaten human health.

Specific inspection schedules performed for the permitted storage and treatment units under this Permit are presented in II.C.2. Additional inspections of the incinerator area are performed pursuant to 40 CFR Part 63 Subpart EEE and are not regulated by this permit pursuant to 40 CFR 264.340(b).

No inspections are required <u>under this Permitpursuant to this schedule</u> on days when waste is not being stored, treated or incinerated in the permitted treatment and storage area. In <u>such these</u> instances, <u>rationale Radford AAP must document this absence of waste storage and treatment for lack of inspection must be indicated in the inspection records.</u>

All inspection results will be recorded on an inspection form by the individual who performs the inspection at the time that the inspection is performed. The individual performing the inspection will sign and date each completed inspection form. Any problem that is noted should also be noted on the Waste Propellant Area, Foreman's Daily Log. If the foreman or operator believes that the inspection warrants immediate action to correct an identified problem, they are to stop the process and get the item repaired. Examples of inspection forms are included as Figures II.C 1 through II.C 10. These example inspection forms are:

The foreman completes this form. The log documents general issues that concern both the Explosive Waste Incinerator (EWI) and the Open Burning Ground (OBG). The log provides a quick view of the daily operations at both units.

Figure II.C 2 Prework Shift Inspections

This inspection is done at the beginning of each shift of operation. The operator checks the overall condition of the buildings prior to operation. This includes inspecting and insuring that spill clean up materials are available, and overall that the unit is safe to operate during that shift. It is the operators' responsibility to contact their foreman if any items on the inspection form are not performing properly.

Figure II.C 3 Incinerator, Daily Inspection

This form covers inspection of the tanks and containment at the Grinder Building and containers. These inspections are for normal operating conditions. The inspector is looking for leaks, belt wear, equipment vibration, and tank liquid levels.

Figure II.C 4—Incinerator, Annual TCLP Testing
The annual test involves sampling for TCLP of certain wastes as described in this Permit.

Only personnel who have completed appropriate training and are approved for the task shall conduct inspections pursuant to this Inspection Schedule.

The types of problems are listed on the example inspection forms above. Any problem that is noted should also be noted on the Waste Propellant Area, Foreman's Daily Log. If the foreman or operator believes that the inspection warrant action to correct any item they are to stop the process and get the item repaired.

II.C.2. <u>Inspection Schedule</u>

Tables II.C-1 and II.C-2 present the schedule by which for inspection of the hazardous waste tank systems and ancillary equipment, incinerators and associated air pollution control equipment and the safety and security devices mergency equipment in the permitted storage and treatment area will be inspected. For each item subject to inspection, the inspection schedule identifies typical problems that may be encountered during the inspection process and specifies the frequency with which the inspections are performed. The items listed in the tables are important due to their role in preventing, detecting, or responding to environmental or human health hazards.

Equipment subject to air emissions standards for equipment leaks (40 CFR Part 264, Subpart BB) are inspected as required by the facility compliance plan specified in Permit Condition III.B and described in Attachment III.A. Inspection schedules for affected equipment are also provided in Attachment III.A (see Module III). The facility compliance plan for regulated equipment is also provided in Permit Condition III.B. and Attachment III.A.—These schedules include weekly visual inspection for leaking pumps, valves, etc., and monthly to annual monitoring of the Subpart BB equipment (depending on the equipment and its designation) using USEPA Method 21. The day shift operator conducts inspections of equipment subject to air emission standards for equipment leaks daily. These inspections are included in Daily Incinerator Inspection Form, Figure II.C 1.

For each item subject to inspection, a list of problems normally encountered is identified in the appropriate table. Inspections will explicitly examine each item for the presence of the conditions noted. Inspection forms will, at a minimum,

include all potential problems for each inspection item as specified in the appropriate table. Inspections of each item will be conducted at the frequency specified.

II.C.3. Remedial Action

Should any problems or deficiencies be observed during an inspection, that observation will be recorded on the appropriate inspection form. Any necessary remedial actions will also be noted on the form and the problem or deficiency will be brought to the attention of the appropriate supervisor. When repairs or remedial actions have been completed, the date and nature of the repairs will be also recorded on the inspection form on which the problem or deficiency was originally noted.

Should any problems or deficiencies be observed that could lead to a release of hazardous waste or which that could threaten personnel safety, operations will cease until the problem or deficiency is rectified. In no case will operations resume until all spill and emergency response equipment is operable and adequately stocked.

II.C.4. <u>Inspection Recordkeeping</u>

The <u>trained</u> operators <u>performing</u> the inspections involved with waste propellant treatment will record each inspection on an a paper inspection form or in the a computer-based program for inspections, if appropriate. These forms include, at a minimum, the potential problems identified in the inspection schedules in Tables II.C-1 and II.C-2, as well as the date, time, and person(s) performing the inspection, the specific observations that were made, any abnormalities that were found, and the date and nature of any repairs or remedial actions. The These completed inspection forms forms will be maintained as a part of the facility operating record for at least three years from the date of inspection. These records will include the date and time of inspection, the name of the inspector (including full signature), a notation of the observations made, and the date and nature of any repairs or remedial actions.

II.C.5. Emergency Equipment

Emergency equipment used at the permitted treatment and storage area includes emergency communication equipment, fire protection equipment, and spill control equipment. This equipment is tested and maintained as necessary to assure proper operation during an emergency situation.

The communications equipment <u>in the permitted treatment and storage area includes consists of five</u> telephones <u>located located at the incinerators, storage facility and control room. Two phones are located in the control room, one at each incinerator, and and one at in the <u>grinder Grinder building Building</u>. These</u>

phones on the site have direct four-digit access to each other and to other locations in the plant.

The telephones serve as the <u>primary</u> internal communication <u>equipment tool</u> to summon the fire department or other emergency assistance. The incinerator and <u>grinder building phones are restricted phones meaning that they cannot receive ealls from outside RFAAP or make calls outside RFAAP.</u>

The control room telephone which has both internal (direct four digit access to other locations in the plant) and external (public telephone access) communication capabilities. In addition, there is a horn on top of the Grinder Building provides another mechanism for alert to personnel in the permitted treatment and storage area to serve as an internal alarm system. A button in the control room (Building 447) actuates this Grinder Building horn. All of this communication equipment is within easy access to all waste propellant-incinerator area personnel.

The buildings at the permitted treatment and storage area (Bldg. 442 and Bldg. 440/441) are also equipped with fire protection and spill control and cleanup equipment. In addition, at each incinerator site there is a The spill control and cleanup equipment includes items such as absorbent materials, personal protective equipment, portable pumps, barricades, and signs. Fire protection equipment includes a type ABC fire extinguisher at each incinerator, as well as air compressors, portable pumps, personal protective equipment, and lights and signs. with a maximum capacity of 1621 cubic feet. Other available emergency equipment at the plant is listed in the Contingency Plan, Attachment II.E of this Permit.

The Hazardous communications systems, fire protection equipment, and spill control equipment are tested and maintained according to standard procedures to assure proper operation during an emergency situation.

TABLE II.C-1 INSPECTION SCHEDULE – TANKS, PIPE LOOP, AND ANCILLARY EQUIPMENT

Inspection Item	Types of Problems	Frequency of Inspection			
Liquid inventory in sumps, tanks, and the control loop	Insufficient freeboard	Daily			
Level sensing/control loop	Mechanical and electrical	Daily			
High level alarms	Operational (Activation of Annunciator Panel)	Daily			
Tanks interior/exterior surfaces and support structures	Corrosion, integrity, leaking of waste ¹ , potential support failure, floor bolt fasteners	Daily			
Data from continuous monitoring equipment	Tanks (slurry, brine, neutralization, etc.) system operating according to design	Daily			
Construction materials of tank structure, support system, and ancillary equipment	Corrosion, leakage ¹ , gaps, cracks, spills, presence of liquids, pathways to the environment	Daily			
Area immediately surrounding tank system and secondary containment	Corrosion, leakage ¹ , gaps cracks, spills, presence of liquids, pathways to the environment	Daily			
Above ground piping, external and internal slurry loops	Leakage ¹ , wet spots, dead vegetation	Daily			
Bolted flanges, joints,_valves, other connections	Leakage ¹	Daily			
Pumps	Drive belt wear, vibration, noise, hot bearings, dirty motor, covered cooling fins, leaking seals, low lubrication oil, damaged electrical components, broken pressure gauges, leaking pipe connections	Daily			
Loading/unloading areas	Spills ¹	Daily, when in use			

^{1.} If an inspection confirms that a leak or spill has occurred from the tank system(of greater than one pound and not immediately contained and clean up) has occurred, the Permittees must notify the Department as required by 9 VAC 20-60-264; 40 CFR 264.196(d) and as specified in the Contingency Plan, Attachment II.E of this Permit. This notification is not required if the leak is less than one pound and is immediately contained and cleaned up.

TABLE II.C-2

$\begin{array}{c} \textbf{INSPECTION SCHEDULE} - \underline{\textbf{SAFETY AND EMERGENCY EQUIPMENT AND}} \\ \underline{\textbf{SECURITY EMERGENCY EQUIPMENT DEVICES}} \end{array}$

Inspection Item	Types of Problems	Frequency of Inspection			
Spill control equipment (e.g., Absorbent absorbent material, booms, etc.)	Out of stock	Weekly or as used			
Fire extinguishers	Seal, hose, pressure, and condition	Monthly or as used			
Personal Pprotective equipment clothing for fire and spill response and decontamination activities —flameproof coveralls —conductive safety shoes —rubber gloves —hard hat with protective neck flap —safety glasses and goggles —hearing protection	Condition of equipment	As used			
Respirators	Condition, operational	Weekly			
Air compressors	Operational	Weekly			
Portable pumps for spill response	Operational	Weekly			
Facility barricade	Condition	Daily			
Flashing red lights	Operational	Daily			
Facility signs	Condition, visible	Daily			
Internal alarm system (horn)	Operational	Daily			
Communication systems	Operational	Daily			

Remove this page and	l insert the following:
Figure II.C-1	Figure a from ATK ltr dtd 24 Jan. 2001
Figure II.C-2	Figure e from ATK ltr dtd 24 Jan. 2001
Figure II.C-3	Figure e from ATK ltr dtd 24 Jan. 2001
Figure II.C-4	Figure j from ATK ltr dtd 24 Jan. 2001

ATTACHMENT II.D

Comment [RFAAP1]: Revised this section to be largely consistent with the training program in the post-closure care permit.

PERSONNEL TRAINING

ATTACHMENT II.D - PERSONNEL TRAINING

II.D.1. Personnel Training

Appropriate training shall be completed by all persons at RAAP who are or may be involved in a task associated with the permitted storage and treatment areas. The Permittee shall insure that those individuals responsible operating and inspecting the permitted systems are appropriately trained. New employees who have as part of their job responsibility tasks that are associated with or may be associated with the permitted storage and treatment area shall not work unsupervised until the training required in accordance with this permit is completed. Such new employees shall complete the required training within six months of their employment date. The purpose of the introductory and continuing hazardous waste training program is to educate the employees who are responsible for handling hazardous wastes. The program makes known to the employee the hazards of those wastes being handled, the regulatory requirements for handling those wastes, and the proper procedures to follow in the event of an emergency. Employee training has been and will be completed through formal classes and through on the job training given by Alliant Ammunition and Powder Company, LLC.

II.D.2. Outline of the Training Program

All training of personnel shall be documented at the time of each completed session and such documentation shall be maintained in the facility operating log for at least three years from the date on which the training was completed. Such documentation shall include the name of each trainee and trainer, date of instruction, and a summary or outline of the training session. Radford has an established group of personnel responsible for the employee training program. The training program at RFAAP consists of a general orientation, instruction for area specific procedures, on the job training, and a general and continued training program. Table II.D-1 summarizes the current training program at RFAAP.

II.D.3. Job Title/Job Description

All training under this permit shall be reviewed at least annually and updated as necessary. All personnel who are subject to the training requirements under this permit shall be required to review their training at least annually. Job titles, job descriptions, and the names of those individuals involved with hazardous wastes at RFAAP are summarized in Table II.D-2. These job titles and the name of the individual filling it are maintained and kept on file at RFAAP.

II.D.4. Training Content, Frequency and Techniques

In general, all personnel who are actively associated with or may be associated with the proper operation, inspection, and maintenance of the permitted storage and treatment areas are required to read the standard operating or maintenance procedure for the incinerator area and the Contingency Plan, as appropriate. In addition, the personnel shall be trained to properly perform their assigned duties including, but not limited to, operating the storage tanks and incinerators and conducting inspections as required by this Permit. Introductory training for all plant employees consists of general orientation, which is provided by the facility training department. Training in operating procedures is given on the job by the area foreman. The operating procedures cover subjects such as cleaning equipment and materials, operating equipment and materials, safety rules and precautions and a step by step description of the designated task. Table II.D-3 is a sample employee training record.

Facility personnel have or will successfully complete the required training program within six (6) months after the effective date of their employment or assignment to the permitted treatment and storage area, or to a new position at the permitted treatment and storage area, whichever is later. Employees will not work in unsupervised positions until they have completed the training requirements described in this section. Facility personnel will also participate in an annual review of the facility operating procedures. The plant has courses on subjects that range from Alliant and RFAAP regulations, technical updates, supervisory training, and personal development. The methods of instruction for these courses include stand-up instruction, films, slide sound presentations, video-taped programs, worksheets, and hands on practice. The form of media is conducive to the content of the course.

II.D.5. Training Director

The personnel noted above shall be required under this permit to fully understand the techniques of proper maintenance and operation and maintain appropriate documentation required under this permit. Supervisory staff shall be trained to review and to provide appropriate guidance and/or liaison with the Permittees' management. The Permittee shall provide sufficient opportunity for personnel to acquire a full understanding of maintenance and operation techniques by providing sufficient instruction and/or sponsoring sufficient instruction by professionals who are qualified to provide such instruction. Area training is the responsibility of the Area Manager, Richard Labrie.

Mr. Jerry Redder conducts or oversees all hazardous waste management training and maintenance of personnel training records. Mr. Redder is a registered professional engineer.

Mr. Redder is presently serving as Lead Compliance Engineer for Solid and Hazardous Waste.

The responsibilities for this position include compiling the hazardous waste annual report; notifying health, Safety, Security, Operations, and Fire Departments of changes in facility status; implementing the emergency response actions required for any spills, tank ruptures or unusual pollution conditions, Supervisor and foreman training, and reviewing operating procedures. Supervisor training includes security regulations, inspection requirements, personnel training, operating records and emergency plan measures. Appropriate changes in facility operating procedures are implemented as a result of training.

Operating personnel receive on the job training based on these operating procedures. At least annually, Mr. Redder conducts a course to review the permit conditions and any changes in the regulations. If a permit modification is approved, Mr. Redder will conduct a seminar on the modification within 30 days of the modification. In this way, the training of the operating personnel in facility procedures is accomplished. The Training Department Manager, Tom Lawley, maintains the records of all training at RFAAP. The Training Department keeps the records on a computer-based file that documents when training has occurred and when it is required again. A log is maintained by the Environmental Department to supplement the Training Department's records.

II.D.6. Relevance of Training to Job Description

All personnel who are or may be exposed to the hazards associated with the permitted storage and treatment operations shall All employees receive general plant orientation and training in area-specific procedures. Employees then receive on-the-job training in all of the procedures, which that specifically pertain to their area of employment.

Table II.D-3 is a sample employee training record. The employee training records are kept for all RFAAP employees. This system of maintaining employee training records at RFAAP (Section II.D.8.) ensures appropriate and relevant training is coordinated with employee job functions.

II.D.7. Training for Emergency Response

The training program at RFAAP includes on the job training to cover effective response to emergencies which involves knowledge of emergency procedures, emergency equipment, emergency systems, communications or alarm systems, and shutdown of operations. The operating procedures, which pertain to these topics are taught to the employee by the foreman. This training is equivalent to the training required by 29 CFR 1910.120(e) in accordance with 29 CFR 1910.120(e)(9). Due to the reactive wastes at RFAAP, it is imperative that adequate fire prevention and protection is provided. Response to fires is provided by RFAAP's fire department. The Fire Prevention and Protection Training Program includes drills, exercises. hands on training sessions. Each fireman receives a minimum of four hours training each week. A training schedule is prepared, and a training record is maintained on each fireman and retained in the fire station. New firemen receive formal and on-the-job training, and respond with the fire company to all fires. The basic training period usually covers at least 18 months depending on the prior qualification and experience of the new fireman. Training of other employees is conducted during drills and safety meetings. Fire department personnel are available to other RFAAP employees on request to conduct classes, demonstrations, and drills. The personnel involved in the actual operation of the permitted storage and treatment area will be trained in the proper procedures for operation of the incinerators and storage tank system. These procedures have been designed to ensure continued safe operation and maintenance and compliance with applicable environmental regulations.

II.D.8. The facility operating contractor will be responsible for the overall training program, scheduling and documentation of such training and shall serve as the RCRA Training Director. Implementation of Training Program

There exists at Radford an extensive system to ensure that required on the job training has been conducted with each employee. When an employee performs a job, he submits a job card which has a code number that indicates the department he works in, his employee number and the operation number for the job he performed. When the cards are processed for payroll accounting through the computer, the computer also searches the employee's training history to determine if the employee was trained in the jobs he performed. If the computer search finds that the employee was not properly trained, it prints out a notice of the training deficiency. This notice is then routed to the foreman so the deficiency may be corrected.

Training records and computer based training (CBT) is maintained by the Training Department.

The system notifies supervision when training is required. Non CBT is recorded when supervisors submit the information to the Training Department for update.

Training of area procedures is recorded in the CBT system.

Current training records of employees involved with hazardous waste management will be kept until closure of the hazardous waste facilities. Training records on former

employees will be kept for at least three years from the date the employee last worked at the facility.

- II.D.9. All personnel required under this permit to receive training shall at minimum be instructed in the following areas:
 - a. Area specific management practices regarding the permitted storage and treatment area;
 - b. Security and safety;
 - c. General and area specific inspections and recordkeeping;
 - d. Regulatory updates that affect operations and activities; and
 - e. Job function and procedural descriptions of each employee's respective role in the permitted storage and treatment operations.
- II.D.10. A complete outline of the training program is provided in Appendix II.D-1.
- II.D.11. Job titles and descriptions for personnel involved in the permitted storage and treatment operations are summarized in Table II.D-1. These job titles and the name of the current person filling that position are kept on file at the RFAAP.

TABLE II.D-1 – JOB TITLES AND RESPONSIBILITIES

Job Title	Job Description	Training Required
RCRA Compliance Coordinator	Responsible for overall administration of hazardous waste management program as directed by the US Army under the terms of the operating contract for the installation.	Trained in all aspects of hazardous waste management.
Training Coordinator	Conduct general and continuing training program.	Trained in all aspects of hazardous waste management.
Plant Protection Manager	Overall monitoring of radio transmissions and HWMU security.	Trained in all aspects of hazardous waste emergency response.
Fire Department Coordinator	Assist in preparation and presentation of training program, maintain pre-fire plan for the area, and respond to fire alarms.	Trained in hazardous waste emergency procedures.
<u>Firemen</u>	Respond to hazardous waste emergencies.	Trained in all aspects of hazardous waste emergency response. Training conducted with regular fire training and not hazardous waste program.
Medical Staff	Responds to all health emergencies. Responsible for all aspects of hazardous waste emergency health response.	Trained in hazardous waste emergency medical procedures.
Safety Manager	Assist in preparation and presentation of training program, provide health, safety and toxicological data on handling hazardous wastes.	Occasional outside training program to keep current. Trained in all aspects of hazardous waste emergency response.
Shift Foreman	Conduct weekly inside building inspections, supervise hazardous waste handling operations at HWM facility, and supervise minor spill cleanup. Responsible for on-the-job training of employees.	Trained in hazardous waste handling procedures, including chemical hazards, personnel protection, and explosive reactions.
Waste Propellant Facility Operators	Responsible for incinerator control room, coordinating maintenance activities, and performing inspections. Unloading, placing, and loading of hazardous wastes at a HWM facility.	Trained in hazardous waste handling procedures, including chemical hazards, personnel protection, and explosive reactions.
Environmental Manager	Functions as alternate to RCRA Coordinator. Responsible for overall plant environmental management.	Trained in all aspects of manufacturing and hazardous waste disposal operations.
Plant Manager	Responsible for overall plant management.	Trained in all aspects of manufacturing operations.

Attachment II.D

Appendix II.D-1

OUTLINE OF TRAINING PROGRAM

Training Outline

1. Personnel Training

The purpose of the introductory and continuing hazardous waste training program is to educate the employees who are responsible for handling hazardous wastes and any permit related tasks. The program makes known to the employee the hazards of those wastes and the proper procedures to follow in the event of an emergency. The employee training has been and will be completed through formal classes and through on-the-job training administered by the Training Coordinator.

2. Overview of the Training Program

The training program at the facility consists of a general orientation, instruction for area-specific procedures, on-the-job training, and a general and continuing training program.

3. Training Content, Frequency, and Techniques

Introductory training for all facility employees consists of a general orientation that is provided by the facility training department. Training in operating procedures is given on-the-job by the area foreman. The operating procedures cover subjects such as cleaning equipment and materials, operating equipment and materials, safety rules and precautions, and a step-by-step description of the designated task. Appropriate changes in facility operating procedures are implemented as a result of training.

Facility personnel have or will successfully complete the required training program within six (6) months after the effective date of their employment or assignment to the permitted storage and treatment area, or to a new position at the permitted storage and treatment area, whichever is later. Employees will not work in unsupervised positions until they have completed the training requirements described in this section. Facility personnel will also participate in an annual review of the introductory training program.

4. Training Coordinator

The Training Coordinator conducts or oversees all hazardous waste management training and maintenance of personnel training records. This person is also currently assigned as the RCRA Compliance Coordinator. The responsibilities for this position include compiling the hazardous waste biennial report, notifying health, safety, security, operations, and fire departments of changes in facility status, and reviewing operating procedures.

5. Training Records

Training records are maintained for all facility employees by the training department.

Training records of all employees involved with hazardous waste management will be reviewed annually in order to ensure that employee training is current and that appropriate and relevant training is coordinated with employee job functions.

<u>Current training records of employees involved with hazardous waste management and</u> former employees will be kept as required by this Permit.

Contractor employee training records will be maintained by the contractor and supplied to ATK on an annual basis for recordkeeping.

6. Training for Emergency Response

The training program at RFAAP includes on-the-job training to cover effective response to emergencies. Additionally, it is imperative that adequate fire prevention and protection is provided by the facility's fire department due to the reactive wastes at the facility.

The Fire Prevention and Protection Training Program includes drills, exercises, and hands-on training sessions. Each fireman receives minimum of four hours training each week. A training schedule is prepared and a training record is maintained on each fireman and retained in the fire station. New firemen receive formal and on-the-job training and respond with the fire company to all fires. The basic training period usually covers at least 18 months depending on prior qualification and experience of the new fireman.

Training of other employees is conducted during drills and safety meetings. Fire department personnel are available to other people on request to conduct classes, demonstrations and drills.

7. Implementation of the Training Program

There exists at RFAAP, an extensive system and computer program to ensure that required on-the-job training has been conducted with each employee. Based on the job title/description, each employee is assigned two sets of training programs and procedures. The first set is a general plant training set that each new employee gets and the second set of training is an area and job specific set. These training sets have a deadline by which they have to be completed. On-the-job training and area specific procedure training is usually preformed by the employee's foreman/supervisor. When the training is complete, the foreman/supervisor and employee verify the training with a sign-off sheet.

The computer training program is maintained by the training department. The computer training program is designed to notify supervision when training is required. **TABLE H.D-1**

OUTLINE OF RFAAP TRAINING PROGRAM

Type of Training	Training Content	Training Technique
General Plant Orientation	Layout of plant, security procedures, general job requirements, propellant safety requirements	Area training Coordinator at an onsite location.
Area Specific	Emergency response, safety training, and	Area Training Coordinator at an

Procedures	accident prevention	onsite location
On-the-Job Operating Procedures	Operating the waste propellant incinerator, grinding and slurry operation, draining slurry tanks, propellant handling and transport, inspecting the surface impoundment, operating the open burning grounds	Area Foreman with on-the-job training.
General and Continuing Training	Alliant and RFAAP regulations, technical updates, supervisory training, personnel development practice.	Various instructors with stand-up instruction, films, slide-sound presentation, video-taped programs, and hands-on

Title	Responsibilities and Training Required	Current Assigned Personnel
RCRA	Responsible for overall administration of	Mr. I. I. Redder
Coordinator	hazardous waste management program as	J. J. Icoddol
Coordinator	directed by the Army under the terms of the	
	operating contract for the installation. Trained in	
	all aspects of hazardous waste management.	
	Involved in pollution abatement and hazardous	
	waste management. Responsible for Waste	
	Analysis Plan. Coordinates hazardous waste	
	management supervisory training.	
ACO Safety	Maintains health and safety documents, and	Mr. Douglas Day
Protection	operational records. Trained in all aspects of	Mr. Boughts Buy
Officer	safety-related hazardous waste management.	
ACO	Responsible for coordinating the hazardous waste	Mr. Leonard Diloia, Jr.
Environmental	management program and ACO regulations,	Mi. Beolara Bilola, Jr.
Scientist	update compliance plans, notify	
Serement.	Health/Safety/Security Operations/Fire	
	Departments of changes in HWM facility status.	
Safety Manager	Assist in preparation and presentation of training	D. Hall
Safety Wanager	program, provide health and safety data on	D. Hun
	handling hazardous wastes. Occasional outside	
	training program to keep current. Trained in all	
	aspects of hazardous waste emergency response.	
Training	Conducts general and continuing training	
Coordinator	programs.	Mr. Thomas Lawley
Plant Protection	Overall monitoring of radio transmissions and	Mr. Thomas Lawley
Manager	HWM facility security. Trained in all aspects of	
	hazardous waste emergency response.	
Fire Department	Assist in preparation and presentation of training	Mr. Thomas Lawley
Coordinator	program, maintain prefire plan for HWM facility,	min monage Eumey
1	respond to fire alarms. Trained in hazardous	
	waste emergency procedures.	
Medical Nurse	Responds to all health emergencies. Responsible	Susan Simpkins, R.N.
	for all aspects of hazardous waste emergency	~
	health responses.	
Toxicologist	Review handling and management of an new	Mr. Robert Kelly
Board	materials to be used at RFAAP. Responsible for	Mr. Mike Lee
11	safety procedures.	
WPI Foreman	Conduct weekly inside building inspections,	Ms. Wanda Jones
	supervise hazardous waste handling operations at	
	HWM facility, minor spill cleanup supervision.	
	Responsible for on-the-job training of employees.	
Container	Unloading, placing, and loading of hazardous	Four people per shift
Storage Facility	wastes at a HWM facility. Trained in hazardous	F F F
Operators	waste handling procedures, including chemical	
F	hazards, personnel protection, and explosive	
	reactions.	
<u> </u>	10001010.	

Title	Responsibilities and Training Required	Current Assigned Personnel
Waste Propellant	Responsible for incinerator control room,	M.Smith, R. Meredith,
Facility	coordinating maintenance activities, and	M. Booth, T. Lovern,
Operators	performing inspections. Unloading, placing, and	J. McMillian, J. Burnett,
	loading of hazardous wastes at a HWM facility.	C. Conley, J. Boyer,
	Trained in hazardous waste handling procedures,	D. Duncan
	including chemical hazards, personnel protection,	
	and explosive reactions.	
Firemen	Responds to hazardous waste emergencies.	All firemen
	Trained in all aspects of hazardous waste	
	emergency response. Training conducted with	
	regular fire training and not hazardous waste	
	program.	
Environmental	Functions as alternate to RCRA Coordinator.	Ms. C. A. Jake
Manager	Responsible for overall plant management.	
	Trained in all aspects of manufacturing and	
	hazardous waste disposal operations.	
Vice President	Functions as alternate to RCRA Coordinator.	Mr. M. A. Miano
Operations	Reponsible for overall plant management funds	
*	allocation and expenditure. Trained in all aspects	
	of manufacturing and hazardous waste disposal	
	operations.	

TABLE II.D-3

SAMPLE EMPLOYEE TRAINING RECORD

Remove this page and insert the following:

Figure H.D-3

Table H-3 from Sept. 2000 permit appl.

ATTACHMENT II.E

CONTINGENCY PLAN

<u>ATTACHMENT II.E – CONTINGENCY PLAN</u>

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Figure II.E-2 – Area Map

Figure II.E-3 - Process Flow Diagram

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Figure II.E-6 – Area Evacuation Routes

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Table II.E-1	Notification Action Summary

Table II.E-2 Emergency Equipment Locations at RFAAP

Table II.E-3 Evaluation Criteria for Implementation of the Contingency Plan

Table II.E-4 Spill Response Measures

The following text was excerpted from RFAAP's January 12, 2001 submittal. The original fomatting and numbering scheme is retained in order to simplify the anticipated inclusion of additional hazardous waste management units (e.g., the Open Burning Grounds).

II.E.1 1.0 INTRODUCTION AND GENERAL INFORMATION

This Contingency Plan (Plan) has been prepared for the Waste Propellant Incinerator hazardous waste incinerators and the storage/treatment tanks (herein referred to as the Incinerator), permitted treatment and storage units, at the Radford Army Ammunition Plant (RFAAP). This Plan has been compiled as a stand-alone document for the permitted treatment and storage area and has been structured to be consistent with other plans and procedures in use at the RFAAP.

II.E.1a 1.1—Purpose

In accordance with Subpart D of 40 CFR Part 264, this document describes the Contingency Plan that will be activated in the event of a fire, explosion, or release of hazardous waste or hazardous waste constituents, which that could threaten human health or the environment. A current copy of the Plan will be maintained in the RFAAP Facility Gerating operating Record record as well as in the Environmental Manager's files.

The overall objective of this Contingency Plan is to minimize hazards to human health or the environment from fires, explosions, or any unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituents to air, soil, or surface water. This plan defines the actions to be taken in the event of an emergency within the permitted storage and treatment area. This Plan is designed to address the requirements of Subpart D of 40 CFR Part 264. Management plans, Army installation procedures, and plant operating procedures exist outside the text of this Plan. The purpose of these other documents is to handle emergency situations that might occur at the RFAAP, but that may or may not be directly associated with hazardous waste management. Although these documents are not required under Subpart D of 40 CFR Part 264, and are not part of this Plan, a brief description of the contents of these documents and a listing of the established operating procedures applicable to RFAAP emergency and disaster situations are included in Table 1. Appendix A contains a copy of the table of contents for the RFAAP Disaster Control Plan (RFAAP DCP) and the Plant Protection Plan.

II.E.1b 1.2 Plan Contents

This Contingency Plan contains pertinent information to be used during an emergency situation. The various sections and content of the plan are listed below.

- Section <u>II.E.</u>2 describes facility operations and the types of hazardous wastes managed at the Incinerator—;
- Section <u>II.E.</u>3 identifies the RFAAP Emergency Coordinator and alternates-:
- Section <u>II.E.</u>4 discusses Contingency Plan implementation;
- Section <u>II.E.</u>5 presents a description of release prevention measures.
- Section II.E.6 describes emergency response procedures.;
- Section <u>II.E.</u>7 describes coordination agreements between RFAAP and surrounding communities-:
- Section <u>II.E.</u>8 presents the permitted treatment and storage area evacuation plan-;
- Section II.E.9 outlines release-reporting requirements-; and

• Section II.E.10 includes requirements for Contingency Plan modifications.

II.E.2 2.0—FACILITY LOCATION, OPERATIONS, AND AND WASTES MANAGED

This section provides background information that may be useful as part of an emergency situation. This information includes the location of the facility, operations performed at the facility, types of wastes managed, and potential emergency situations that could be encountered.

II.E.2a 2.1—Facility Location

The RFAAP is located in southwest Virginia within Pulaski and Montgomery Counties as shown in Figure II.E-1. The RFAAP is located approximately 5 miles northeast of the City of Radford, 10 miles west of Blacksburg, and 47 miles southwest of Roanoke. The main entrance to the RFAAP is located on Virginia Route 114 between the Towns of Christiansburg and Radford. The RFAAP address is as follows:

Radford Army Ammunition Plant Route 114 P.O. Box 1 Radford, Virginia 24141-0100

The RFAAP encompasses approximately 4,104 acres. The New River separates Pulaski and Montgomery counties and also divides the RFAAP into two portions commonly known as the Horseshoe Area and the Main Manufacturing Area. These two areas and the approximate boundary of the RFAAP are shown on Figure 4II.E-1.

The Incinerator is located within the north central portion of the Horseshoe Area as shown in Figure II.E-1 and is used for the incineration of waste propellantenergetic wastes. Figure II.E-2 shows the Incinerator boundary and the locations of the actual structures. Figure II.E-3 is a schematic diagram that shows how waste propellants-the energetic wastes are processed as part of the treatment process.

II.E.2b 2.2 Facility Operations

General operations performed at the RFAAP and at the permitted treatment and storage area are described in the following sections.

i) 2.2.1 RFAAP Operations

RFAAP is a government-owned, contractor-operated (GOCO) industrial installation responsible to the U.S. Army Armament, Munitions and Chemical Command. The RFAAP's whose mission is to manufacture propellants, explosives, and chemical materials as assigned. The Alliant Ammunitionr and Powder Company, L.L.C. (Alliant) currently is the operator of the facility under a Facility Use contract. As a GOCO operation, RFAAP has both Government and Contractor organizations. For the purpose of this permit application, the facility consists of all contiguous portions of the RFAAP. under the control of the either the U.S. Army or Alliant (Permittees). The facility specifically includes both the Horseshoe Area and the Main Manufacturing area. Wastes from onsite activities (including those of both the

operating contractor and tenants) are managed in the permitted storage and treatment area. Additionally, wastes from the nearby New River Unit (NRU) are handled at the site.

The facility was first constructed in 1940 and began operations producing smokeless powder (single base, double base, and triple base propellants) in 1941. Since that time various processes/products have been added to the facility including production of cast propellants, trinitrotoluene (TNT), commercial propellants, and load, assemble and pack facilities. Specific operations vary based upon contracted capacity and products from the Department of Defense and U.S. allies.

ii) 2.2.2 Incinerator Operations

Operations included <u>in the permitted storage and treatment area</u> as part of the <u>Incinerator</u> include grinding, tank storage and treatment, and incineration equipment. <u>The primary structures included in the permitted storage and treatment area are</u> as follows:

- The Grinder Building (identified as Building/Account No. 442), where wastes are ground into small pieces prior to being mixed into the slurry and incinerated. The Grinder Building houses the two permitted storage tanks.
- Incinerators 440 and 441 (identified as Accounts 440 and 441), where the slurried wastes
 are treated in accordance with this Permit and the Hazardous Waste Combustor National
 Emission Standards for Hazardous Air Pollutants.
 - Grind Houses (Structures 430 and 442)
- Control Houses (Structures 431 and 447)
- Incinerator Buildings (Structures 440 and 441); and
- Ancillary Buildings (Structures A 440, B 440, and A 441

The following areas are specifically excluded from the "permitted treatment and storage area" (refer to Figure II.E-2 for structure designations) as these are included in the USEPA RCRA Corrective Action Permit or were closed under previous closure plans administered by the DEQ:

- Settling Ponds #1 and #2 (identified as Accounts 445 and 446), which are included as Solid Waste Management Unit (SWMU) No. 39 in the USEPA RCRA Corrective Action Permit;
- Incinerator Fuel Oil Storage Units, including Structures 432 and 443, which were underground storage tanks used for fuel oil storage and were previously closed under a plan administered by the DEQ;
- Spray Pond (identified as Account 444), which was identified as Hazardous Waste
 Management Unit (HWMU) No. 39 and was previously closed under a plan administered by the DEQ; and
- Ancillary Building A-444, which served as the pumphouse for the spray pond and was previously closed under a plan administered by the DEQ.

<u>In addition to these areas, there are several other structures in the general vicinity of the incinerators that are not included in the permitted storage and treatment area because they are not</u>

used to accumulate waste for periods greater than 90 days. These buildings and structures include:

- The incinerator control room and adjacent supply area (identified as Buildings 431 and 447);
- Temporary waste accumulation area (identified as Building 430), which is used to accumulate wastes for < 90 periods prior to treatment in the incinerator; and
- Ancillary buildings in the incinerator complex that store supplies and/or instrument equipment and calibration gases (identified as Accounts A-440, B-440, and A-441).

Structures that are specifically excluded from the Incinerator include the following:

- Incinerator fuel oil storage units (including Structures 432 and 443)
- Spray pond (Structure 444)
- Settling ponds #1 and #2 (Structures 445 and 446); and
- Ancillary Building (Structure A 444).

The Spray Pond has been clean closed for soils by the VDEQ and Settling Ponds #1 and #2 are currently managed through the U.S. Environmental Protection Agency (EPA).

Specific operations that are performed at the Incinerator are <u>listed_described</u> below. Figure-<u>II.E-</u>3 is a schematic diagram that shows how <u>the</u> waste<u>s</u> <u>propellants</u>-are processed as part of the treatment process.

- Waste materials are transported from production areas in < 20 gallon containers to an < 90 day accumulation area at Building 430 or Building 4601-7. (Note: the wastes are accumulated for less than 90 days and therefore these buildings is are not a-permitted container storage facility for these containersies).
- 2. At the Grind House (Building 442) the waste propellant energetic waste is loaded into onto a trolley, and dumped into a hopper, and fed onto a conveyor. The material is sprayed with water to minimize the chance of a waste explosion. Oversize and metallic materials are removed from the waste stream on the conveyor which is and then dropped into the grinder feed hopper. Again the waste is sprayed with water to minimize the potential for an explosion. The waste is then ground and added to one of two slurry tanks. In the slurry tanks the waste is mixed with water to form a slurry for incineration. These slurry tanks are not completely emptied every 90 days; therefore, these tanks have been permitted as > 90 day storage tanks storage permit is being sought for the slurry tanks in the Grinder Building.
- The waste slurry is circulated through a piping system to the incinerators' feed
 pump house and back to the slurry tank to prevent settling and build up of solids
 in the lines. Portions of this flow are directed from the feed pump house to the
 incinerators for treatment.
- 4. Residue from the incinerators incineration system is collected in an-ash buggybuggies and drums and is accumulated. The ash is staged on-site pending

Attachment II.E

II.E-6

sample analysis and <u>is then</u> disposedel in a properly permitted disposal facility. Residue is also collected from the Bag House and evaporative cooler.

2.2.3 Reserved

II.E.2c 2.3—Wastes Managed

The hazardous wastes that are managed (treated and stored) at the permitted facility include waste propellants energetic materials and spill "cleanup" residues generated at the facility or the nearby NRU. These wastes which are hazardous due to their ingnitability (D001) and/or reactivity (D003). Additionally, some of the wastes may exhibit the toxicity characteristic for certain metals and/or 2,4-dinitrotoluene. A detailed description of the wastes is provided in the Only hazardous wastes identified in this Permit's Waste Analysis Plan in Attachment II.A of the Permit, will be treated or stored at the Incinerator. These wastes include the following:

- 1. Wastes which exhibit only the following hazardous characteristic(s):
 - Reactivity (hazardous waste number D003) as specified in 9 VAC 20-60-261: 40 CFR Part 261-23:
 - b. Reactivity (hazardous waste number D003) as specified in 9 VAC 20 60-261; 40 CFR 261.23 and the characteristic of toxicity, as specified in 9 VAC 20 60 261; 40 CFR 261.24, for one of the following constituents:
 - i. Lead (hazardous waste number D008);
 - ii. 2,4 Dinitrotoluene (hazardous waste number D030); and/or
 - iii. Barium (hazardous waste number D005)
 - e. Ignitability (hazardous waste number D001) as specified in 9 VAC 20-60-261; 40 CFR 261.21. Ignitable wastes are limited to clean up residue of propellant ingredients. Ignitable wastes are mixed with sawdust and are not a liquid when brought to the permitted treatment and storage area.
- Wastes which are not listed pursuant to 9 VAC 20 60 261; 40 CFR 261.31, 32, and 33; and
- 3. Wastes which are one of the following (as identified in the Waste Analysis Plan):
 - Off specification propellants and propellant intermediates, generated at the facility;
 - b. Liquid wastes, consisting of water and diethylene or triethylene glycol;
 - e. Load, assemble and pack waste, consisting of energetic materials from assembling cartridges;
 - d. Specialty product wastes containing propellant with nitrocellulose, nitrate esters, nitroguanidine, solid explosives, and one of the following combinations of additional materials:
 - i. 40 CFR 261 Appendix VIII constituents (D003)

- ii. 40 CFR 261 Appendix VIII constituents, chlorides and/or perchlorates (D003)
 iii. 40 CFR 261 Appendix VIII constituents and/or metals (D003, D004 D010)
 Other miscellaneous waste, described in Module II, Attachment II.B,
- e. Other miscellaneous waste, described in Module II, Attachment II.B, Appendix II.B 1, Table I, as one of the following:
 - i. Ignitable and reactive liquids in sawdust (D001, D003)
 - ii. Propellant laboratory waste (D003, D008, D030, D004)
 - iii. Pit cotton (Waste Nitrocellulose)
 - iv. Dinitrotoluene and Trinitrotoluene Wastes from manufacturing
 that are not listed wastes

i) 2.3.1 Composition of Waste

The composition of the <u>waste propellant mixtures wastes</u> fed to the Incinerator varies over time due to changes in the production schedule at the RFAAP. <u>Generally, these wastes include Off specification propellants and propellant intermediates, dinitrotoluene (including production intermediates), liquid wastes, load, assemble and pack waste, specialty product waste and other miscellaneous <u>energetic</u> wastes are the categories of wastes which may be stored, treated and incinerated at the Incinerator. These wastes may be hazardous due to the ignitability, reactivity, or toxicity characteristics. These categories are segregated into 19 distinct waste groups, as listed in Table 2; all wastes that are stored, treated, and incinerated at the facility fall into one of these groups.</u>

These waste streams are processed as described in Sections 2.2.2 and 2.2.3 and are handled in accordance with the Waste Analysis. There are no wastes managed in the facility permitted storage and treatment area that are incompatible with the waste propellants (reactive waste) with one another.

ii) 2.3.2 Identification and Quantity of Waste

Hazardous wastes treated at the Incinerator consist primarily of off specification/waste propellants as described above. The specific identification of wastes to be stored and treated managed at the permitted storage and treatment area(s) is recorded on an internal manifest form that accompanies the waste from the generation area. This permits easy identification of any material that is released. Consequently, the identity of any released material can be identified.

The quantity and location of hazardous wastes that are maintained on-site at the Incinerator are listed below:

- 3,400-800 gallons of waste slurry in two 1,700-900 gallon tanks;
- Accumulated waste awaiting processing in the grinder (quantity varies based on production schedule); and
- Potentially hazardous ash (quantity varies depending on wastes treated).

II.E.2d 2.4 Potential Emergency Situations

There are several situations that could lead to the release of hazardous waste at the Incinerator area that would require implementation of the Contingency Plan. The most common scenarios that could lead to such a release of hazardous waste are listed below:

- 1. Release of waste slurry due to slow leak or failure of slurry tanks and/or related piping.
- 2. Release of liquid wastes during transfer to slurry tanks.
- 3. Release of solid waste during transfer or processing at Grind Houses or during processing in Grind Houses. in the Grinder Building.
- 4. Release as the result of a <u>fire or an</u> explosion of reactive wastes during processing or handling.

The most serious situation at the Incinerator would be an explosion, as such an incident would pose an immediate danger to facility personnel and could allow for the release of a significant quantity of material. A non-explosive release of waste at the Incinerator presents less of an immediate danger to personnel, but response measures are still important as a safety issue for facility personnel and as a long-term issue for protection of human health and the environment.

II.E.3 3.0 EMERGENCY COORDINATORS

The primary Emergency Coordinator (EC) for all environmental emergencies is the on-call representative from the Environmental Department. Additionally, the facility Ancident Site Commander (EC/ISC) will provide coordination of emergency response such as fire protection, medical attention, etc. at the facility is the Plant Protection Specialist on duty. The EC/ISC has the authority to determine and implement the Disaster Control Plan, RFAAP Hazardous Material Emergency Response Plan, and Plant Protection Plan as well as this Contingency Plan and commit the necessary resources to do so. The EC will receive assistance in these duties from the ISC where appropriate if deemed necessary.

_____The facility has an on-site Fire Department and Hazardous Materials Emergency Response Team. Environmental emergencies are primarily communicated to and handled by the Environmental Manager and the Environmental Engineering Staff in accordance with applicable regulations. The Environmental Manager coordinates all pollution control and remediation activities including monitoring, containment, control, countermeasures, clean-up, and disposal activities. The Environmental Manager and the EC/ISC also have the authority to commit all necessary resources to carry out emergency response under this plan.

Other facility employees are designated as alternate EC4CSs and are qualified to act as EC in event the primary EC is unavailable. A (primary or alternate) emergency coordinator (EC) will be available or on call at all times. The facility personnel who are designated as ECs are listed in Table II.E-3-1 (the Notification Action Summary sheet). The alternate ECs are called on in the order listed to act as the EC in the event of an emergency in the order listed in the table.

Table <u>II.E-3-1</u> also lists the names, addresses, and phone numbers (office and home) of the <u>emergency coordinators-ECs</u> and alternate ECs. All of these persons are qualified by experience and training to act as <u>Emergency Coordinatorthe EC</u>. All of these persons hold management positions at the facility, <u>and</u> have been trained to respond to emergencies dealing

with hazardous waste management, and have extensive experience in the propellant manufacturing environment.

II.E.4 4.0 IMPLEMENTATION

The Contingency Plan will be implemented whenever there is a fire, explosion, or release of hazardous waste or hazardous waste constituents, which that could threaten human health or the environment. The EC will be responsible for evaluation of any situation to determine if the Contingency Plan will be implemented.

——It shall be the duty of all facility personnel to follow the direction of the EC when the decision has been made to implement the Contingency Plan.

4.1 Implementation at the Incinerator

The person observing an emergency situation at the Incinerator will most likely be someone other than the EC. That person is to take the following actions to involve the EC as soon as possible:

- 1. Ensure his/her personal safety.
- Activate the emergency warning alarm system if the incident occurs at Building 442 (Grind House) the Grinder Building (Bldg. 442) or immediately notify the EC if it is at a location other than Building 442.
- 3. Telephone, radio, or otherwise notify the Control House control room of any observed releases (*e.g.*, spills, fires, or explosions) at the Incinerator area and report: his/her name, location, and nature and extent of the release. The Control House control room personnel will immediately notify the Security Dispatcher and the Foreman. The Security Dispatcher will immediately notify the EC.
- Remain available to assist the EC with information about initial observations of the incident.
- 5. The EC will determine whether the Contingency Plan should be implemented.

4.2 Reserved

II.E.5 5.0 RELEASE PREVENTION MEASURES AND CONTROL PROCEDURES

RFAAP has general facility-wide control procedures to minimize the potential for fires, explosions, and chemical releases as part of overall facility operations. Additional measures have been implemented at the Incinerator to prevent and/or control the propagation of such incidents.

II.E.5a 5.1—RFAAP Control Procedures

The RFAAP is designed so that process, raw material storage and product storage facilities present a minimal threat of fire, explosion or material release. These process and storage operations are not subject to RCRA regulation. However, in the course of normal operation and maintenance, hazardous wastes are generated. Because safeguards exist for the non-RCRA regulated processing operations, this also protects against hazards once the waste is generated in the plant.

In the event of a The facility has provisions for response to fires, explosions or spills involving hazardous waste, as follows: Tthe EC will notify the on site supervisorarea foreman to direct personnel to contain, absorb, package, or redirect spilled materials as deemed necessary to protect human health or the environment. For this purpose, the plant maintains an adequate supply of hand and motorized tools and clean, empty containers for recovering waste propellants and other spilled hazardous wastes.

The EC has the authority to direct, through the on-site plant fire chief, trained fire crews to contain and control fires and cool affected areas to prevent spread of further spread of hazard. This direction shall be coordinated through the onsite plant fire chief.

II.E.5b 5.2 Incinerator Operating Procedures

Standard operating procedures for the operation of the Incinerator include provisions for monitoring and shutdown of the treatment and processing equipment. Process operations are monitored remotely from the control room and include safety features to ensure safe operation of the unit. Should an emergency situation occur<u>at the incinerator</u>, the system will be shutdown to prevent danger to human health or the environment. Depending on the location and nature of the emergency, the Incinerator units may remain in operation to continue treatment of waste and residual within the Incinerator units themselves.

II.E.5c 5.3 Prevention of Recurrence or Spread of Fires, Explosions or Releases

Numerous precautions are taken at the permitted TSDF storage and treatment area in order to reduce the likelihood that fires, explosions, or other unsafe conditions occur. These precautions are incorporated into the standard operating procedures for the area and the include general response to procedures for responding to fires at the Incinerator, as well as procedures for the Grind House (management of waste slurry) and procedures for the Incinerator units.

Sprinklers, when activated in an emergency, automatically provide notification also activate alarms connected to the RFAAP Fire Department. Fire extinguishers are also on hand for immediate use (refer to Section II.E.6-3c of this Plan for a complete list and location of available emergency equipment).

Barricades at the <u>tank grinder</u> and incinerator buildings help prevent the propagation of explosions due to flying fragments impacting nearby operations at the facility. In addition, a number of measures have been implemented to prevent and/or control the spread of fires, explosions, or other releases at the Grind House as noted below:

- The waste slurry <u>stored-managed</u> in the tanks and pipes is an aqueous solution of <u>waste propellantenergetic wastes</u>. The grinding of the waste <u>propellants energetic</u> to form an aqueous slurry helps prevent the occurrence of fires and explosions. This also allows for a closed loop feed system to the incinerators <u>which-and</u> minimizes the operator handling of the waste <u>propellantsmaterials</u>.
- Operating procedures for shutting down the grinder are part of the facility's plant emergency procedures. These procedures are designed to help prevent the release of waste propellants and/or propellant slurry hazardous wastes should a system upset of or malfunction occur.
- Secondary containment systems for the two waste slurry tanks (described in Section <u>II.E.66.5.1e</u>) help prevent any released material from entering the environment.
- 4. Process equipment in the Grinder Building 442-includes a grinder fail-safe system, which flushes the slurry lines with water in order to clear the lines of residual slurry. The fail-safe system is activated in the event of either a process air system or electrical shutdown. (Compressed air is used to operate several pneumatically actuated valves within the Building.) Thus, if the facility operations are stopped, the lines will be cleared of propellant-waste slurry and slurry from the tanks will be collected in the containment system. After the slurry lines flush, the operators will-turn off the fail-safe system, evacuate to the control room, and monitor the fail-safe system and incinerator controls during an emergency response.

The incinerators have built-in safeguards against equipment failure during emergency conditions. These safeguards help prevent fires, explosions, orand the release of propellant waste slurry. The following conditions will trigger an emergency shutdown of the incinerator Safeguards consist of an alarm horn that will sound under the following conditions:

- The control system fails; The incinerator burner stops burning;
- An electrical power failure occurs;
- The induced draft fan fails;
- The kiln stops rotating;
- When safety interlock feed pump
- Thes, cooling and recirculating pump fail-safe systems activate;
- <u>The</u>, and/or air compressor fail-safe system are is activated; or
- <u>A Hhigh</u> temperature (safety) limit is reached <u>in the kiln, afterburner, or evaporative cooler.</u>

Should there be a fire, explosion, or release of hazardous materials at the Incinerator, the EC and other environmental and operational personnel will review the incident after response and clean-up activities are completed. Based on this review, the cause will be determined, if possible, facility operating procedures or design will be revised as necessary, and other corrective actions will be taken in order to help prevent a reoccurrence. The Contingency Plan will also be revised as necessary in order to improve facility response to future incidents.

II.E.6 6.0 EMERGENCY RESPONSE PROCEDURES

This section outlines procedures to be followed during an emergency. <u>Information on the EC responsibilities</u>, the required notifications, control, cleanup, and mitigation procedures is <u>presented. situation including the following information:</u>

- The responsibilities of the EC;
- Notification procedures for facility personnel and regulatory agencies; and
- Various procedures for responding to and controlling an emergency situation.

II.E.6a 6.1 Emergency Coordinator's Responsibilities

When the decision has been made to implement the Contingency Plan, the Emergency Coordinator EC's's responsibilities will include, but will not be limited to, the following:

- 1. Identifying hazardous materials and assessing hazards;
- 2. Accounting of for facility personnel;
- 2. <u>Implementation-Implementing of internal notifications</u>;
- 3. Coordinating on of first-aid activities;
- 4. Controlling and monitoring site conditions;
- 5. Activation Activating of the Evacuation Plan, if required; and
- 56. Notifyingication of appropriate State and local authorities (coordinated notification requirements with the Environmental Department); -
- 7. Coordinating the storage, treatment, and disposal of released material; and
- 8. Providing post-emergency management.

II.E.6b 6.2 Notifications

Procedures for the notification of RFAAP personnel and appropriate federal, state and local agencies are included in this section. The Notification Action Summary is provided in Table II.E-3-1 of this Contingency Plan. Should the EC be offsite at the time of the emergency, these notifications shall be made by the designated alternate EC or another onsite designee.

i) 6.2.1 Internal RFAAP Notifications

Internal communication systems (telephone or two-way radios) will be used to notify RFAAP personnel. The appropriate alarms will be activated and the EC will be notified in an effort to implement the Contingency Plan as outlined in Section II.E-4.0.

ii) 6.2.2 Notification of Federal, State, and Local Agencies

The Environmental Manager (or a designated alternate) will notify appropriate state and local agencies as outlined in this plan and as listed below.

Release Greater Than Reportable Quantity: State and federal regulations require immediate notification whenever there is a release of a hazardous substance greater than a reportable quantity as listed in 40 CFR 302.4. The list on the following page are the substances

Comment [RFAAP2]: Modifications were made to this section to address RCRA concerns only. Other notification requirements outside those in the RCRA regulations have been removed.

that are at RFAAP that have an RQ. Not all of the substances listed are at the incinerator or burning ground but are on site.

CHEMICALS AND SUE			
Chemical	Reportable	Chemical	Reportable
	Quantity (lbs.)		Quantity (lbs.)
Acetone	5,000 lbs	Nitric acid	1,000 lbs (80 gal @
	(755 gal)	(any percentage)	100% conc.)
Ammonia (anhydrous)	100 lbs	Nitroglycerin (NG)	10 lbs (<1 gal)
Chlorine	10 lbs	Petroleum products (oils,	150 lbs
		fuels, used or waste	(25 gallons to land)
		products)	
Dibutyl phthalate (DBP)	10 lbs (1 gal)	Petroleum products (oils,	Visible sheen on
		fuels, used or waste	outfall or river
		products)	
Diethyl phthalate (DEP)	1,000 lbs	Phosphoric acid	5,000 lbs (329 gal
	(100 gal)		@100% conc.)
Ethyl ether	100 lbs	Sodium hydrosulfide	5,000 lbs
	(17 gal)		
2,4 dinitrotoluene (DNT)	10 lbs	Sodium hydroxide	1,000 lbs (100 gal
		(any solution)	@20% caustic)
Lead	10 lbs	Sulfur dioxide	500 lbs
Mercury	1 lb	Sulfuric acid	1,000 lbs (66 gal @
	(1.3 ounces)	(any percentage)	100% conc.)
Mixed acids	1,000 lbs	Toluene	1,000 lbs
(any percentage)	(80 gal)		(138 gal)
OTHER HAZARDOUS	SUBSTANCES, V	VASTES, OR AIR EMISS	IONS
Sludge from Bioplant	10 lbs	Wastewater with a pH of	100 lbs
		≤ 2.0 or	(12 gal)
		pH ≥ 12.5	
Sludge from NG Pre	10 lbs	DNT Contaminated	225 lbs
Treatment Plants		Wastewater	(27 gallons)
Waste propellant	100 lbs	Visible air emissions for	_
• •		> 1 hour	
Ash from Propellant and	10 lbs	Any other material	
Contaminated Waste		identified as hazardous	
Incinerator		waste	

Note: Chemicals in bold print are "OSHA Extremely Hazardous Substances" and require special consideration of health effects in emergency response efforts.

greater than a reportable quantity in accordance with Section 103 of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) and as listed in 40 CFR Part 302.
2. The Director of the Virginia Department of Environmental Quality must be notified within 24 hours of any release of hazardous waste in a quantity greater than the Reportable Quantity.
Release That Threatens Off-Site Impacts: In the event that a release occurs that could threaten human health or the environment outside the facility. Pursuant to 40 CFR 264.56(d), if the Emergency Coordinator determines that the facility has had a release, fire, or explosion, which could threaten human health or the environment outside the facility, he the EC shall report his her findings as follows pursuant to 40 CFR 264.56(d). Accordingly, ÷
1. If his assessment indicates that evacuation of local areas may be advisable, he shall immediately notify appropriate local authorities. He shall be available to help appropriate officials decide whether local areas should be evacuated; and
2. He shall immediately notify the local government official designated as the on- scene coordinator for that area, and the State Emergency Response Team of the Virginia Department of Emergency Management at 800/468-8892.
3. <u>the EC shall A release that poses an immediate or imminent threat to public health and requires notification of notify:</u>

The National Response Center (800, 424, 8802) must be notified of any release

Additionally, if the EC determines that an evacuation of local areas may be advisable, he/she shall immediately notify appropriate local authorities. The EC shall be available to help appropriate officials decide whether local areas should be evacuated.

(540) 980-7705 if the emergency is within Pulaski County.'s Office.

In the event that an emergency situation occurs that requires notification of outside agencies, the following information shall be reported:

- 1. Name and telephone number of notifier;
- 2. Name and address of facility;

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- 3. Date, Ttime, and type of incident;
- 4. Name and quantity of material(s) involved to the extent known;
- 5. The extent of injuries, if any; and
- 6. The possible hazards to human health or the environment outside the facility.

II.E.6c 6.3 Emergency Equipment Available

The emergency equipment available and "on-call" for use at the unit is listed in MOP 4-27-2. This MOP list, and information obtained from the safety manager and the fire chief at RFAAP, is summarized in Table II.E-6-2 and Figure II.E-54. The numbers (1-12) in Table II.E-6-2 indicate the different physical locations and Figure II.E-5-4 shows these locations within the facility.

In addition to the equipment listed in Table II.E-62, other fire, personnel protection, and cleaning equipment is available as follows. Fire protection equipment includes sprinkler systems (Building 442), portable fire extinguishers, a mobile carbon dioxide extinguishing system, and fire hydrants near the hazardous waste facilities and at various locations within the plant. Cleaning equipment such as brooms, dustpans, and sawdust is found in the Grinder Building (Building 442). Additional spill cleanup equipment is located in the Roads and Grounds Building (Building 7217).

II.E.6d 6.4 Containment, Countermeasures, Clean-Up and Disposal

General response measures that will be implemented during an emergency situation at the Incinerator and/or the OG Ground are presented below.

- 1. Ensure Personal Safety, Sound Alarm and Notify Emergency Coordinator:

 Upon identification of a fire, explosion, or other release personnel shall engustre their personal safety and then activate the alarm system and notify the EC. The alarm system consists of radio and telephone. Both forms of alarm are accessible at the Incinerator. The alarms will be used to contact the Security Dispatcher, which is staffed 24 hours a day, 7 days a week.
- 2. **Evacuation:** Personnel will evacuate the area as outlined in the Evacuation Plan in Section II.E-8.0 and as directed by the EC.
- 3. **System Shutdown:** In the event of a fire, explosion, material release or other system upsetemergency, the incinerator operations will be shut down so that personnel can enter the area to respond.
- 4. Identify the Material(s) Involved: The specific identification of wastes will be determined from the internal manifest forms, which identify the materials that are sent to the Incinerator and to the OB Ground. Copies of the manifests are carried in the transport vehicles carrying the waste. Upon delivery to the treatment facility, the manifests are transferred from the transport vehicles and are kept at the Incinerator Control Room-or at the OB Ground Trailer, depending on the waste destination. In addition, copies of the manifests are kept at the operational office for each accumulation area from which the waste is generated.

Each waste transport vehicle also utilizes a hazard classification placard system to allow firefighting forces to quickly and easily determine the methods by which any emergency situations involving the waste materials should be handled. A description of the hazard classification placard system is included in Appendix B.

5. Assessment: Upon arrival at the scene, the EC (or the designated alternate) will take control of the affected area including all resources necessary to deal with the emergency. The EC will maintain this authority and control until the emergency has been eliminated and cleanup is complete.

After taking control of the affected area, the EC will determine the source, extent, and nature of the involved hazardous waste and assess any primary and secondary hazards. Waste generation, source and analytical data are to be used to make this determination. These records shall be kept on-site. The evaluation criteria used by the EC to determine if the Contingency Plan is to be implemented are presented in Table II.E-43. A logic diagram representing the evaluation process is shown as Figure II.E-65.

- 6. Alert Local Authorities for Assistance: Should the situation require resources beyond those available at the RFAAP, local fire, police, and/or medical support will be requested as described in Section II.E-7.0.
- 7. *Implement Spill Response Measures*: Spill response measures will be implemented as outlined in Table II.E-5-4 using spill response equipment available at the facility as listed in Table II.E-6-2 and materials provided by supporting communities as needed. Response measures include evaluation of safety issues, containment of the release, regulatory notifications, waste treatment, and monitoring. Response measures will be performed by the RFAAP Fire Department and Emergency Response Team under the direction of the EC with assistance from other local agencies as needed.
- 8. Storage Accumulation and Treatment of Released Material: If a spill or leak occurs in the grinder Grinder building Building, the released material (an aqueous waste propellant slurry) will be contained in the secondary containment system. The slurry will drain to a sump from which it is that can be pumped to the catch tank. If waste propellant slurry hazardous waste is released to the ground such as may occur due to a failure in the slurry feed line, applicable spill response measures outlined in Table II.E-5-4 will be followed. Recovered energetic waste propellant will be treated at the open burning ground, if appropriate.

Ash from fires will be treated similar to incinerator ash. The ash will be analyzed for reactivity, TCLP toxicity, and other constituents as specified in the Waste Analysis Plan in Attachment II.B of this Permit. If the ash fails for either or both characteristics, or is a listed hazardous waste, it will be taken to a RCRA permitted facility. If it is not determined to be a hazardous wastedoes not fail, it will be disposed in an appropriately permitted solid waste landfill, if such disposal is in accordance with that permit.

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9. Incompatible Wastes: There are no wastes managed in the facility permitted storage and treatment area that are incompatible with the waste propellants (reactive waste) one another. All waste from production propellant operations are treated in tanks and incinerated. Thus Therefore, the danger of the mixing of incompatible wastes during cleanup procedures is very unlikely.

II.E.6e 6.5 Incinerator-Specific Response Measures

Specific measures for the grinder slurry tanks and for the incinerators are included in the following sections.

i) 6.5.1 Tank Spills and Leakage

In the event of a spill or release from the hazardous waste tank system, the released material should be contained in the secondary containment system. Tank level indicators are monitored by operators in the control room. Should indication of a leak or spill be provided, Aa visual inspection of the area will be conducted immediately. in the event of a leak or spill from the slurry tanks to the secondary containment system. Additionally, Tthe secondary containment system is inspected every 24 hours to determine whether any leaks have occurred in accordance with 40 CFR 264.193(c)(3). The containment system in Building 442 consists of the makeup tank and a sump pump drainage system. Liquid or slurry, which that collects in the sump, is pumped to the exterior catch tank. From there, the liquid can be pumped back into the makeup tank or the slurry tanks, or, can be pumped into a portable tanker truck for accumulation or transfer.

Upon detection and visual inspection of a leak or spill, RFAAP will comply with all applicable requirements of 9 VAC 20-60-264 and 40 CFR 264.196. Waste treatment and incineration Grinding operations will immediately cease, and any leaking tank will be emptied. The spilled or residual waste from the sump, basement of the building, or catch tank will be placed into waste containers and removed. The wastes will either be sent to the open burning ground or placed in the other tank and incinerated when operations are able to resume. Waste will be removed from the tanks, containment system, and/or floor sump within 24 hours. Any leaking tank will be inspected, the cause of the failure determined, and the defect repaired pursuant to the requirements of 9 VAC 20-60-264 and 40 CFR 264.196-(e), and certified (if necessary) pursuant to 40 CFR 264.196(f) prior to being returned to service. In the event that a repaired tank is returned to service, the Director of the Virginia Department of Environmental Quality must be notified that the repaired tank has been returned to service within seven (7) days. If a leaking tank cannot be repaired, the tank system will be closed in accordance with 9 VAC 20-60-264 adopting 40 CFR 264.196(e) by reference.

In the event of a tank overfill/rupture or pipe rupture, the standard procedures to tefor handlinge an explosive liquid spill (GOP 4-15-53) will be followed. Any contaminated equipment will be decontaminated and reused or decontaminated and disposed of as excess equipment. The procedures describing these actions are also found in GOP 4-15-53. Spilled waste collected in containers will receive treatment as soon as one of the explosive waste incinerators is properly operating again. The waste will be stored kept at the facility's container

storage management area in accordance with 9 VAC 20-60-262; and 40 CFR 262.30 through 34 until the time that treatment begins.

ii) 6.5.2 Incinerator Spills and Leakage

A release of materials from the slurry loop line or in the area of the waste propellant incinerator may occur due to failure of the slurry line either by rupture or gasket failure. Spill response measures to such an incident are outlined in Table II.E-54. The Emergency Coordinator EC will direct the spill response program. Procedures are provided in these tables and associated permit paragraphs concerning safety, containment, evaluation, notification, treatment, and monitoring as related to each spill incident.

The perimeter of the concrete slab on which the incinerators are located contains a grated gutter to capture washdown water. Any slurry whichthat—may leak onto the slab will be washed into the gutter and will be pumped into the same external catch tank which serves that provides as—containment for the Grinder Building (Bldg. 442). Response procedures to leaks or spills outside of the incinerator slab are outlined in Table II.E-54. Decontamination and repair of the unit will be accomplished depending on the type of repair required. For example, if welding is required, the material must first be decontaminated with heat. If welding is not required, the material can be decontaminated with water.

II.E.6f 6.6 Disposal of Miscellaneous Waste and Debris

Wastes generated as part of a response action will be collected and contained. Those materials that cannot be treated in the incinerator or the open burning area will be characterized and disposed of off-site in accordance with state and federal laws. Such wastes may include but is are not limited to the following:

- Personal protective equipment;
- Plastic sheeting used for decontamination or containment;
- Absorbent materials; and
- Soil and/or water.

II.E.6g 6.7—Post-Emergency Equipment Maintenance

Post-emergency provisions are designed to prevent recurrence, to clean up and dispose of residuals, to decontaminate equipment, and to provide for personnel debriefing.

The Emergency CoordinatorEC will take all necessary steps to ensure that a secondary release, fire or explosion does not occur after the initial incident. Procedures that will be carried out in the affected area include:

- 1. Inspection for any leaks or cracks in pipes, valves, tanks, and incinerators;
- 2. Inspection for excess heat generation at the incident area; and
- 3. Isolation of residual waste materials.

All waste propellant energetics and other cleanup residues will be tested for RCRA characteristics and other parameters as necessary to meet waste profiling requirements. The

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material will then be transported to a RCRA permitted facility should they it be determined to be a hazardous waste. If the residues are determined to be non-hazardous, they will be disposed in a permitted solid waste landfill.

All equipment used during the cleanup will be decontaminated on-site and readied for future use. Site personnel will remove and properly dispose of contaminated clothing as necessary. Fire extinguishers will be recharged, personnel protective equipment will be replaced, and tools will be restocked. Before operations are resumed, all safety equipment will be inspected.

II.E.7 7.0 COORDINATION AGREEMENTS

_____Mutual assistance agreements have been made with the following communities identified in Table 1 of Appendix II.E-1. : Dublin, Fairlawn, Radford, Christiansburg, Riner, Longshop/McCoy, and Blacksburg located near the facility. Copies of the Mutual Assistance Agreements and Supplemental Agreements are included in Appendix Cmaintained onsite in the facility operating record. These mutual assistance agreements pertain to the local fire departments. Furthermore, there is close cooperation between local county law enforcement officials and -RFAAP Security personnel for traffic control in the plant area if a significant disaster should occur.

Facility staff will contact selected local and regional entities and authorities that may be involved in an emergency situation according to the anticipated needs at the plant. Personnel from these organizations may be asked to support RFAAP personnel in response to fires, explosions, or chemical releases if RFAAP personnel cannot adequately address the situation internally. Personnel from these agencies will act under the direction of the EC and will be directed and escorted by plant personnel.

Arrangements with local hospitals have also been made through verbal-agreements between RFAAP and surrounding medical facilities. Table 2 in Appendix II.E-1 identifies those agreements that are in place. Copies of these agreements are maintained onsite in the facility operating record. Immediate support is available at New River Valley Medical Center (15 minutes traveling time) and the Montgomery County Community Hospital in Blacksburg (12 minutes traveling time). Helicopter service is available upon request from the New River Valley Medical Center. In addition, the RFAAP medical staff nurses areis familiar with the properties of the hazardous wastes handled at the facility and the types of injuries or illnesses which that could result from fires, explosions or releases at the facility, and . There is a reference book, Medical Directives for Occupational Health Nurses, for the local nurses to follow in addition to their experience in anticipation of the RFAAP doctor's arrival or aid from a local hospital. To supplement the aforementioned resources, RFAAP firemen are state-certified emergency medical technicians.

Due to RFAAP's in-house fire department, medical staff, and security force, and the unique wastes to be dealt with, the facility EC will act as the primary authority during emergency situations. RFAAP security personnel are responsible for escorting local fire department and emergency response teams to any emergency site within the plant. Emergency units from fromtoffsite will not be allowed to respond inside RFAAP without an escort. For incidents in the horseshoe area, units from Dublin, Fairlawn, Blacksburg, Riner,

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Longshop/McCoy, or Radford will-may be asked to assemble at Gate 10 or the main gate on Route 114. For incidents in the Main Plant Area and larger incidents in the horseshoe Horseshoe area Area, units from Radford, Christiansburg and Blacksburg will-may be asked to assemble at the Main Gate on Route 114. Entry to the manufacturing area will usually be through Gate 1.

II.E.8 8.0 EVACUATION PLANS

8.1 Incinerator Evacuation Plan

The Incinerator is located within the north central portion of the Horseshoe Area of the facility. This area is an isolated location as shown on Figure II.E-1. The New River acts as a protective barrier on the northern and southern exposures of this area. Thus, if an emergency situation should develop at this area, evacuation of the entire facility is not likely to be necessary. The Incinerator operating personnel should be the only persons immediately endangered during an emergency situation at the facility.

Evacuation procedures for Bldg. 442, Bldg. 440/441, and Bldg. 4601-7, are given in GOP 4-3-2the incinerator area direct personnel to assemble at Building 447 (Control Room) in the event of a fire, explosion, or other event in the area. Evacuation will occur in the event of fires and electrical storms. For electrical storms specifically, evacuation will be conducted as described in the operating procedure. The procedural steps extracted from GOP 4-3-2 are as follows Should evacuation of the area be deemed necessary, it will proceed as follows:

- 1. The grinder operation shall will be shut down during electrical storms and all personnel will remain gather in the control room.
- Container accumulation area operations shall be <u>stopped</u> and <u>secured</u>. All personnel at the container accumulation area shall return to the <u>Control control Room</u>room.
- 3. The incinerator shall remain operational during electrical storms. (NOTE: This is to complete the treatment of the residual slurry.)
- 4-3. Propellant feed into incinerators will be stopped. The incinerator slurry feed line will be flushed
- 5.4. Slurry will continue to circulate through loop system.
- 6.5. Operations will be resumed when directed by supervisory personnel.

There are a minimum of two people and a maximum of five people assigned per shift at the Waste Propellant Incinerator Area. During process operations, the operators are either located in or near the control room, or are within the permitted treatment and storage area. Personnel will remain in the control room, an underground, blast-proof facility, during evacuation periods. Communication among the operators will be through existing two-way radio communication systems, telephones, in the grinder building (Bldg. 442) or through the warning horn located on the grinder building Building and activated at the incinerator complex. The small number of people in the area, the accessible communication systems, and the close proximity of the evacuation area help ensure a safe evacuation plan at the permitted treatment and storage area.

The primary evacuation route for <u>persons within</u> the permitted treatment and storage area is shown in Figure II.E-76. The evacuation location is Building 447, the control room, which is

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an underground, blast proof control house. While the primary route for evacuation to the control room is via a This control house is accessible from a direct paved path from Bldg. 442 and Bldg. 440/441. The area surrounding area near the facilities is unoccupied, so alternate evacuation routes from the hazardous waste facilities to the control house may take any number of paths through the grass turf.

8.2 Reserved

II.E.9 9.0 REQUIRED REPORTS

Reporting requirements for emergency situations to regulatory agencies and to the U.S. Army are presented in this section.

9.1 Incident Reports

Pursuant to 9 VAC 20-60-264; 40 CFR 264.56(ji), the time, date, and details of any incident, which that requires implementation of the Contingency Plan, will be noted in the facility operating record. In addition, within 15 days after the incident, a written report will be submitted to the Director of the Virginia Department of Environmental Quality. The report will include:

- 1. Name, address and telephone number of the owner or operator;
- 2. Name, address and telephone number of the facility;
- 3. Date, time, and type of incident;
- 4. Name and quantity of material(s) involved;
- 5. The extent of injuries, if any;
- 6. An assessment of actual or potential hazards to human health or the environment, where this is applicable;
- Estimated quantity and disposition of recovered material that resulted from the incident; and,
- 8. Such other information specifically requested by the Director, which that is reasonably necessary and relevant to the purpose of an operating record.

Pursuant to 9 VAC 20-60-264; 40 CFR 264.196-(d), for any tank system or secondary containment, any release to the environment, except as provided in item 1 below, will be reported to the Department within 24 hours of its detection. If the release has been reported pursuant to 40 CFR Part 302-(see Section 6.2 of this Contingency Plan), that report will satisfy this requirement.

- 1. A leak or spill of hazardous waste is exempted from the reporting requirements of section Section II.E-9.0 of this Contingency Plan, if it is:
 - a. Less than or equal to a quantity of one pound, and
 - b. Immediately contained and cleaned-up.
- 2. Within 30 days of detection of a release to the environment, a report containing the following information shall be submitted to the Department:

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- a. Likely route of migration of the release;
- b. Characteristics of the surrounding soil (soil composition, geology, hydrogeology, climate);
- e. Results of any monitoring or sampling conducted in connection with the release (if available). If sampling or monitoring data relating to the release are not available within 30 days, this data shall be submitted to the Department as soon as they become available;
- d. Proximity to downgradient drinking water, surface water, and populated areas; and
- e. Description of response actions taken or planned.

9.2 U.S. Army Material Command Notification

RFAAP also follows U.S. Army Material Command notification procedures. If a release occurs, a report similar to the one required by Federal and State agencies is submitted to the U.S. Army Material Command. The reported information required by 40 CFR 264.56(j) and delineated above shall also be incorporated into the facility's permanent operating record.

— RFAAP will notify the Director and other appropriate Commonwealth and local authorities that:

- 1. Cleanup procedures have been completed; and
- All emergency equipment listed in the Contingency Plan is cleaned and fit for its intended use prior to resuming operations in the affected area(s) of the facility.

II.E.1010.0 MODIFICATION OF PLAN

Pursuant to 9 VAC 20-60-264; 40 CFR 264.54, this Contingency Plan is subject to review and amendment, if:

- a. The plan fails in an emergency;
- b. The facility permit is revised;
- c. The facility changes in design, construction, operation, maintenance, or other circumstances; in a way that materially increases the potential for fires, explosions, or releases of hazardous waste constituents; or changes the response necessary in any emergency;
- d. The list of emergency coordinators changes; or
- e. The list of emergency equipment changes.

When the contingency plan is amended for any reason the Permittees will request a permit modification pursuant to 40 CFR 270.42.

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FIGURES

Remove this page and insert the following:

- —Figure II.E-1 <u>Location of the RFAAP</u>Figure 1 from Contingency Plan submitted with ATK ltr-dtd 12 Jan. 2001
- ——Figure <u>II.E-</u>2 Figure 2 from Contingency Plan submitted with ATK ltr dtd 12 Jan. 2001Area Map
- ——Figure <u>II.E-</u>3 <u>Figure 3 from Contingency Plan submitted with ATK ltr dtd 12 Jan. 2001Process Flow Diagram</u>
- Figure <u>II.E-5-4</u> <u>Figure 5 from Contingency Plan submitted with ATK ltr dtd 12 Jan. 2001Emergency Equipment Locations</u>
- Figure 6-<u>II.E-5</u> <u>Figure 6 from Contingency Plan submitted with ATK ltr dtd 12 Jan. 2001Contingency Plan Implementation Logic Diagram</u>
- Figure 7-<u>II.E-6</u> <u>Figure 7 from Contingency Plan submitted with ATK ltr dtd 12 Jan. 2001Area Evacuation Routes</u>

TABLES

Comment [RFAAP3]: Many of the changes shown in the following tables were made to be consistent with those tables presented in the post-closure care permit.

<u>TABLE 1</u> EMERGENCY PROCEDURES

RFAAP Disaster Control Plan (RFAAP DCP) provides plans for:

- 1) Equipment and/or facility damage
- 2) Oil and hazardous substance control
- 3) Chemical, nuclear or radiological accidents
 - 4) Emergency situation reporting
 - 5) Search and rescue operations
 - 6) Crisis emergency/relocation plan
 - 7) Communications electronics

Spill Prevention, Control and Countermeasure (SPCC) Plan and Installation Spill Contingency
Plan (ISCP) for spills other than hazardous waste described in the Part B-permit.

SPCC provides:

- 1) The location and capacity of tanks containing process materials and wastes
 - 2) A description of equipment and/or operation
- 3) Spill potential information (types of failure, description of flow, maximum loss anticipated, detection methods, time to reach river)

ISCP is concerned with the recognition, reporting, containment and notification procedures in the event of leaks and spills.

Fire Prevention and Protection Program Describes:

- 1) Employee and Fire Department personnel responsibilities for fire prevention and protection
 - 2) Inspection and use of equipment and supplies
 - 3) Fire Department training program
 - 4) Building evacuation procedures
 - 5) Annual Fire Prevention and Protection Program
 - 6) Prefire plan and other fire plans

RFAAP Hazardous Material Emergency Response Plan provides:

- 1) Emergency response notification requirements
 - 2) Training requirements
 - 3) Medical surveillance
 - 4) HAZCOM MSDS information
 - 5) List of hazardous materials at RFAAP
 - 6) PPE selection criteria
 - 7) Available material and equipment
 - 8) Emergency response procedure
 - 9) Incident command structure and response
- 10) Emergency response guidelines (per chemical basis)

TABLE 1 EMERGENCY PROCEDURES (Continued)

Oil Discharge Contingency Plan provides:

- 1) Regulated petroleum tank information
- 2) Emergency notification requirements
- 3) Worst case discharge information
- 4) Disaster plan strategies
- 5) I.D. of natural responses at risk or facilities
- 6) Oil discharge drills
- 7) Facility staffing, equipment and material levels and inventories
- 8) Training requirements
- 9) Inspection procedures
- 10) Facility security

Plant Protection Plan (PPP)

Outlines plant protection/security procedures including the security of explosives, intrusion detection systems, protective communications and key and lock control.

Procedures

4 27 2: Maintenance Responsibilities During Disaster and Major Emergencies

Applicable Plant Operating Procedure: Protective Clothing and Equipment

Attachment H.H of this Permit: Flood Proofing/Protection Plans and Specifications and 100 Year Response Procedures

4-15-53: Clean up and Decontamination of NG/Nitrate Ester and Other Hazardous Spills

4 3 2: Area General Waste Propellant Incinerator Facility

TABLE 2 WASTE GROUPS BURNED AT THE INCINERATORS RADFORD ARMY AMMUNITION PLANT

Group No.	Description	Defining Characteristics
1	Miscellaneous Waste	Ignitable and reactive Liquids and Sawdust D001, D003
2	Miscellaneous Waste	Propellant Laboratory Waste D003, D008, D030, D004
3	Miscellaneous Waste	Pit Cotton (Waste Nitocellulose) Solid Waste
4	Miscellaneous Waste	Dinitrotoluene and Trinitrotoluene Wastes from manufacturing that are not listed wastes D030
5	Liquid Waste	Water Containing Triethlyene Glycol Solid Waste
6	Liquid Waste	Water Containing Diethylene Glycol Solid Waste
7	Single Base Propellants	Propellant with Nitrocellulose and Lead D003, D008
8	Single Base Propellants	Propellant with Nitroeellulose D003
9	Single Base Propellants	Propellant with Nitrocellulose and Dinitrotoluene D003, D030
10	Double Base Propellants	Propellant with Nitrocellulose and Nitrate Esters
44	Double Base Propellants	Propellant with Nitrocellulose, Nitrate Esters and Perchlorate salts D003
12	Double Base Propellants	Propellant with Nitrocellulose, Nitrate Esters and Lead, D003, D008
43	Double base Propellants	Propellant with Nitrocellulose, Nitrate Esters and Solid Explosives D003
14	Triple base Propellants	Propellant with Nitrocellulose, Nitrate Esters and Nitroguanidine
15	Load, Assemble, & Pack Waste	Energetic materials from manufacturing cartridges D003
16	Single Base Propellants	Propellant with Nitrocellulose, Dinitrotoluene and Lead D003-D008
17	Specialty Products Waste	Propellant with Nitrocellulose, Nitrate Esters, Nitroguanidine, Solid Explosives, or Appendix 3.6 Constituents D003
18	Specialty Products Waste	Propellant with Nitrocellulose, Nitrate Esters, Nitroguanidine, Solid Explosives, and Appendix 3.6 Constituents, Chlorides or Perchlorates D003
19	Specialty Products Waste	Propellant with Nitrocellulose, Nitrate Esters, Nitroguanidine, Solid Explosives, and Appendix 3.6 Constituents or Metals D003, D004-D010

TABLE <u>II.E-31</u> NOTIFICATION ACTION SUMMARY

ON-SITE Emergency Coordinators

Contacts to be made include:

Emergency Coordinator	Office Phone	Home Phone	Home Address
Plant Security	Ext 7323	<u>NA</u>	<u>NA</u>
Plant Fire	<u>Ext 16</u>	<u>NA</u>	<u>NA</u>
Environmental Emergency	Cell 230-8970	<u>NA</u>	<u>NA</u>
On-Call Representative			
(Primary EC)			
Safety On-Call	Security will Contact	<u>NA</u>	<u>NA</u>
Representative			
(Alternate EC)			
Environmental Manager –	Ext 8658	540-961-0907	4815 Nature's Way
Paige Holt (Alternate EC)	Cell 540-257-3752		Blacksburg, VA 24060
Environmental Lead	Ext 7668	<u>540-381-6207</u>	1850 Playground Court
Engineer – Hazardous	Pager 540-953-6781		Riner, VA 24149
Waste – Jeremy Flint			
(Alternate EC)			
Safety Manager - Joseph	Ext 8781	Use cell phone	7530 Bluffview Drive
Betteken (Alternate EC)	Cell 540-239-6562		Radford, VA 24141

ON-SITE Notifications

<u>In addition to the notifications listed above, the EC or a designated representative should provide</u> notification of all major emergencies to the environmental and operations management team.

OFF-SITE Notifications

To be made by the Environmental Manager or a designated representative as needed:

- 1. Army Administrative Contracting Officer Operations Division Chief Cell (540) 239-4475
- 2. Virginia Department of Environmental Quality Blue Ridge Regional Office 540-562-6700
- 3. National Response Center (for releases above an RQ) 1-800-424-8802
- 4. Virginia Department of Emergency Management 1-800-468-8892
- 6. Montgomery County Local Emergency Planning Committee (LEPC) (540) 382-2951
- 7. Pulaski County Local Emergency Planning Committee (LEPC) (540) 980-7705
- 8. Emergency Service Resources (Fire, Ambulance, Police) 911
- 9. Chemtrec 1-800-424-9300ON SITE NOTIFICATION:

Responsible Unit: Phone Number

Waste Propellant Incinerat	aste Propellant Incinerator Control House:		Extension 7770	
	Office Phone #	Home Phone #	Home Address	
Emergency				
Coordination				
Administrative Contracting Officer	540 639 8647			
D. D. Facemire Safety Specialist	540 639 7182	540 731 1595	7678 Brandon Road Radford, VA 24143	
J. M. Slaughter Safety Specialist	540 639 8731	540 980 4621	Rt. 1, Box 393 Pulaski, VA 24301	
D. M. Hurley Safety Specialist	540-639-8313	540-382-3698	350 Pepper Street, Crestview #305G	
		· · · · · · · · · · · · · · · · · · ·	Christiansburg, VA 24073	
P. K. McMillian Safety Specialist	540 639 8671	540 755 3577	Box 388 Cana, VA 24317	
T. E. Lawley Security Manager	540 639 7119	540 552 7995	2804 Farmview Dr. Blacksburg, VA 24060	
C. A. Jake Environmental Manager	540 639 7214	540 639 6215	4107 Gedney Park Drive Blacksburg, VA 24060	
J. S. Pack Environmental Engineer	540 639 8369	540 639 6675	2190 Wintergreen Drive Radford, VA 24141	
J. J. Redder Environmental Engineer	540 639 7536	540 951 3064	P. O. Box 10925 Blacksburg, VA 24060	
C. A. Williams Hazard Analysis	540 639 7225	540 726 2835	304 W. Westview Narrows, VA 24124	
Supervisor				
R. A. Bond Acid Area Manager	540 639 7393	540 639 7488	1234 Shady Grove Road Indian Valley, VA 24105 304	

TABLE II.E-2 EMERGENCY EQUIPMENT LOCATIONS AT RFAAP

Location # on Figure 5	Location Description	Equipment Available
<u>1.</u>	Bldg. 1034, Electric Shop	Rubber gloves and respirators
<u>2.</u>	Bldg. 1039	Self-contained breathing apparatus (2)
<u>3.</u>	Roads and Grounds Bldg	Respirators, goggles, air fed respirators, safety belts, shoe cleats, air compressors (250 and 700 CFM ratings), portable pumps (50, 100, and 700 GPM capacities), cranes, bulldozers, movers, graders, tow tractors, portable electric generators
<u>4.</u>	Bldg. 1908	Absorbent materials and booms
<u>5.</u>	Bldg. 350, Fire Department	Ladder truck, engine, utility truck, brush truck, ATV's, command vehicle, and ambulance.
<u>6.</u>	Bldg. 222	HAZMAT trailer with response gear, special operations trailer, and 2boats.
<u>7.</u>	Bldg 201, Main Laboratory	Nitroglycerin remover
<u>8.</u>	Warehouse No. 9387-2	Soda ash
<u>9.</u>	Bldgs. 440 and 441 (incinerators	Fire Extinguishers
<u>10.</u>	Bldg. 442	Telephone access
11.	Bldg 4601-7	Telephone access and spill cleanup equipment

TABLE 3 NOTIFICATION ACTION SUMMARY (CONTINUED)

OFF-SITE NOTIFICATION

TO BE MADE BY THE ENVIRONMENTAL SUPERVISOR OR STAFF (OR HIS DESIGNATED REPRESENTATIVE).

1. ADMINISTRATIVE CONTRACTING OFFICER, RFAAP 540-639-8482 OR

2. DEPARTMENT OF ENVIRONMENTAL QUALITY WATER DIVISION 540-562-6700 (DAYS)

3. DEPARTMENT OF ENVIRONMENTAL QUALITY WASTE DIVISION 540-562-6700

4. NATIONAL RESPONSE CENTER 1-800-424-8802

5. VIRGINIA DEPARTMENT OF EMERGENCY MANAGEMENT (VDEM) 1-800-468-8892

6. U.S. ENVIRONMENTAL PROTECTION AGENCY 215-814-5000

7. CHEMTREC (IF NEEDED) 1-800-424-9300

8. MONTGOMERY COUNTY SHERIFF (LOCAL EMERGENCY PLANNING COMMITTEE) 540-382-2951

10. NEW RIVER VALLEY MEDICAL CENTER AMBULANCE SERVICE (IF NEEDED) EMERGENCY 911

12. DEPARTMENT OF ENVIRONMENTAL QUALITY WASTE DIVISION 540-562-6872 (AZIZ FARAHMAND)

TABLE 4<u>II.E-3</u> EVALUATION CRITERIA FOR IMPLEMENTATION OF OF THE CONTINGENCY PLAN

<u>In accordance with the Contingency Plan Implementation Logic Diagram (Figure II.E-5), the following are examples of when the contingency plan would need to be implemented:</u>

For a fire and/or explosion:

- If the fire causes a release of toxic fumes that go off plant or impacts personnel
- If the fire could spread (is not contained), thereby possibly igniting materials in other locations on-site or off-site, or could cause heat induced leaks or explosions
- If the use of fire suppressant could result in contaminated runoff that cannot be contained.
- If an explosion has or could:
 - o Result in damage from flying fragments or shock waves
 - o Ignite other hazardous waste at the facility
 - Release toxic materials that could cause harm to human health or the environment or cannot be contained.
- Or if a fire or explosion endangers human health or the environment for any other reason.

For spills or material releases

• If a spill endangers human health or the environment.

Fire and/or Explosion

- Fires causes the release of toxic fumes
- The fire could spread, thereby, possibly igniting materials in other locations on site or offsite, or could cause heat induced leaks or explosions
- The use of fire suppressant could result in contaminated runoff
- Explosion has or could:
- Result in danger from flying fragments or shock waves
- Ignite other hazardous waste at the facility

- Release toxic materials
- Fire or explosion endangers human health or the environment for any other reason

Spills or Material Releases

- · A spill could release toxic or explosive liquids, thus causing a fire or explosion hazard
- A spill could result in off site or on site soil contamination and/or ground or surface water contamination
- A spill constitutes a release of a "reportable quantity" of a hazardous substance under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA)
- A spill endangers human health or the environment for any other reason

TABLE <u>II.E-45</u> SPILL RESPONSE MEASURES

The spill response program will be coordinated by the Emergency Coordinator or designated representative. Guidelines are provided concerning safety, containment, evaluation, notification, treatment and monitoring as related to each spill incident.

1. Safety

- a. Evaluate the hazard of the spilled chemical to personnel that may be involved in containment, clean up, treatment and monitoring operations.
- b. Assure proper clothing and protective equipment is available and used by personnel involved in the spill response.

2. Containment

- a. Establish the expected flow path of the spilled material.
- b. Locate the nearest proposed damming site.
- c. Erect a dam notify Roads and Grounds regarding construction of dam.

3. Evaluation of Spill Extent

- a. Obtain pH readings at site if chemical spilled was an acid or base.
- b. Confirm stoppage of leak at source.

4. Initial Notification

- a. Delegated to the Emergency Coordinator
- b. Notify appropriate agencies (see Notification Action Summary)

5. Treatment

a. Straw or other absorbers will be supplied to entrap hazardous wastes that are spilled. Sites/locations within the plant containing straw and other entrapment materials are controlled by Roads and Grounds.

6. Monitor Program

<u>Upon receiving notification of an accidental loss to the industrial sewer or surface streams, personnel will obtain grab samples at specified locations and time intervals as determined by the Emergency Coordinator.</u>

a. In-Plant Sites

- i. Suggested sampling sites will be determined based on the location of the spill
- ii. Samples will be collected at internal locations as designated.

b. New River Site

i. Sampling at the New River site will be performed on a staggered basis since the river flow approximates one mile per hour. Sampling will be performed by the operator at Building 4330.

7. Final Treatment

- a. Determine disposition of impounded material depending on type and quantity of spill. Ensure EPA and DEQ concur with disposition.
- b. Provide monitoring for duration of disposition.

Explosion fragments and materials as well as contaminated soils will be decontaminated in either the decontamination oven or the decontamination incinerator on-site at Radford AAP provided they are not TCLP toxic or reactive. The decontaminated materials will then be disposed of in a permitted landfill or as decontaminated scrap. The spill response program will be coordinated by the Emergency Coordinator. Guidelines are provided concerning safety, containment, evaluation, notification, treatment and monitoring as related to each spill incident.

1. Safety

- a. Evaluate the hazard of the spilled chemical to personnel which may be involved in clean up, treatment and monitoring operations.
- Assure proper clothing and protective equipment is available and used by personnel involved in the spill response.

2. Containment

a. Establish the expected flow path of the spilled material.

- b. Locate the nearest proposed damming site.
- e. Erect a dam notify Roads and Grounds regarding construction of dam.
- 3. Evaluation of Spill Extent
 - a. Obtain pH meter readings at site if chemical spilled was an acid or base.
 - b. Confirm stoppage of leak at source.
- 4. Initial Notification
 - a. Delegated to the Emergency Coordinator
 - b. Notify appropriate agencies (see Notification Action Summary).

5. Treatment

Straw or other absorbent materials will be supplied to entrap hazardous wastes which are spilled. Sites/locations within the plant containing straw and other entrapment materials are controlled by Roads and Grounds.

TABLE 5 SPILL RESPONSE MEASURES (Continued)

6. Monitoring Program

Upon receiving notification of an accidental loss to the industrial sewer or surface streams, personnel will obtain grab samples at intervals and from the points described by the Emergency Coordinator.

a. In Plant Sites

- 1. Suggested sampling sites will be determined based on the location of the spill
- 2. Samples will be collected at intervals/.locations designated.

b. New River Sites

Sampling at the New River sites will be performed on a staggered basis since the river flow approximates one mile per hour. Sampling will be performed.

7. Final Treatment

- a. Determine disposition of impounded material depending on type and quantity of spill.

 Ensure EPA and DEQ concur with disposition.
- b. Provide monitoring for duration of disposition.

Explosion fragments and materials and possible propellant contaminated materials and soils will be analyzed using SW846 Method 8332 for explosives and 8330 for nitroglycerine. If the analyses indicate that the materials are reactive, they will be handled as hazardous waste. Hazardous soils and residual reactive wastes will be treated at the OB Ground or sent off site for disposal. If the analyses indicate that the materials are non reactive, they will be disposed of as solid waste.

TABLE 6 EMERGENCY EQUIPMENT LOCATIONS AT RFAAP

Location No. on Figure 5	Location Description	Equipment Available
4	Bldg. 1034, Electric Shop	Raincoats, rubber gloves,
		respirators
2	Bldg. 1039	Self contained breathing
		apparatus (2)
3	Roads and grounds	Respirators, goggles, air fed
		respirators, safety belts,
		shoe cleats, air compressors
		(250 and 700 CFM ratings),
		portable pumps (50, 100
		and 700 GPM capacities),
		cranes, bulldozers, movers,
		graders, tow tractors,
		portable electric generators,
		backhoes, front end loaders,
		portable tankers, absorbent
		pads, booms, cloths
5	Bldg. 1999	Farm wagon with spill
		control materials
6	Bldg. 222, Fire	1 ladder truck, 1 engine, 1
	Department	utility truck, 1 tanker, 1
	_	brush truck, 1 HAZMAT
		trailer with response gear, 3
		boats with trailers
7	Bldg. 4018	Boats, motors, hoses,
	-	nozzles and other supply
		equipment

TABLE 6 EMERGENCY EQUIPMENT AT RFAAP (Continued)

8	Bldg. 201, Main	nitroglycerine remover
	Laboratory	
9	Bldgs. 440 and 441	Halon 1211 Model 1300
	(incinerators)	Hal, type ABC fire
		extinguishers
10	Bldg. 442	Telephone access
11	Bldg. 4601 7	Telephone access and spill
	-	cleanup equipment

APPENDIX A

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RFAAP DISASTER CONTROL PLAN AND
RFAAP PLANT PROTECTION PLAN

RFAAP DISASTER CONTROL PLAN TABLE OF CONTENTS

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APPENDIX B

HAZARD CLASSIFICATION PLACARD SYSTEM

Remove this page and insert the following:

Appendix B — Appendix B from Contingency Plan submitted with ATK ltr dtd 12 Jan. 2001

APPENDIX CII.E-1

EXAMPLE MUTUAL ASSISTANCE AGREEMENTS

TABLE 1 MUTUAL ASSISTANCE AGREEMENTS WITH LOCAL MUNICIPALITIES

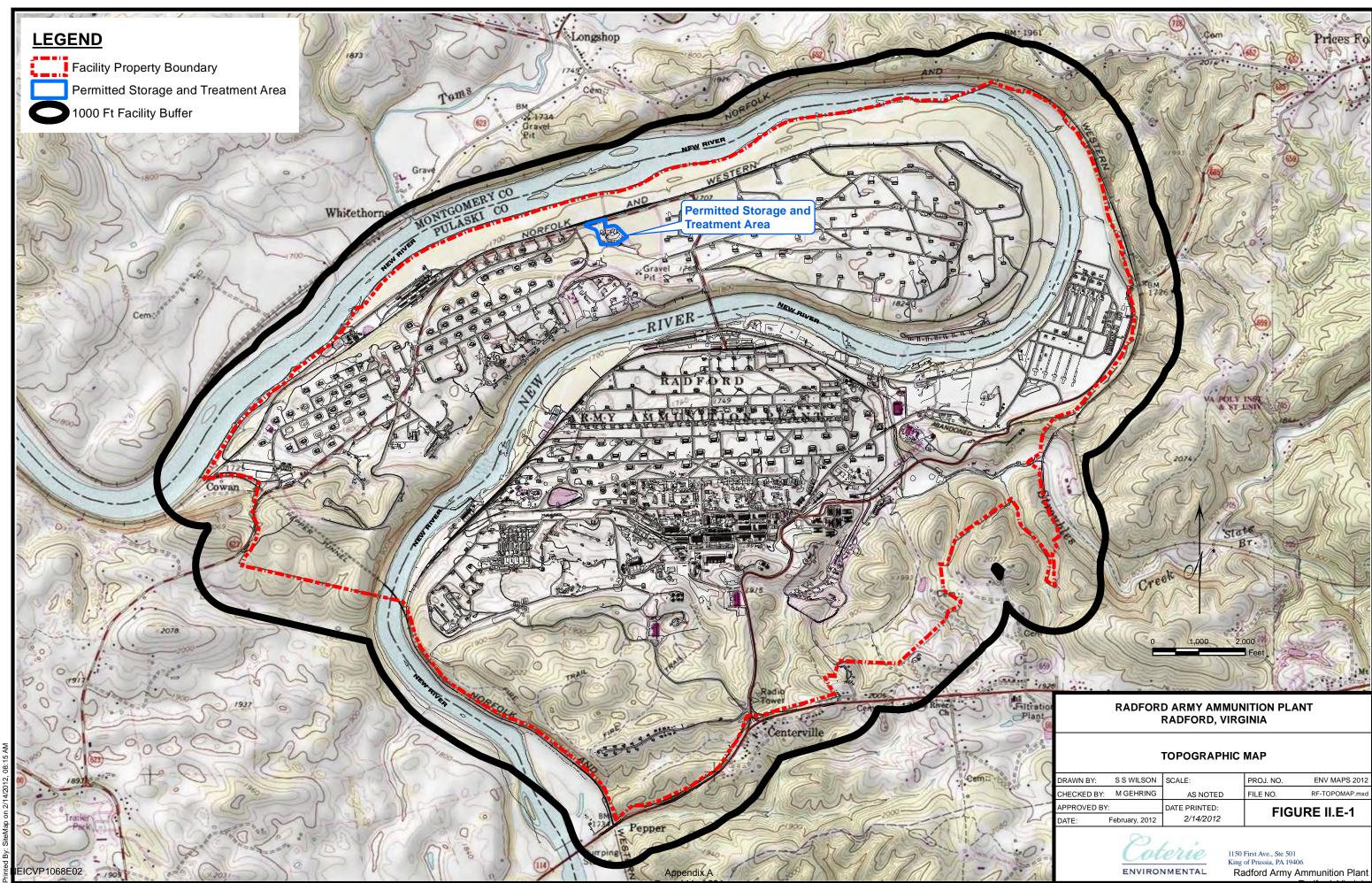
ENTITY	DATE OF AGREEMENT	SERVICES INCLUDED
Twin Community Volunteer Fire Department	<u>August 2, 2011</u>	Firefighting equipment and personnel
<u>City of Radford</u>	<u>July 11, 2011</u>	Firefighting equipment and personnel
Fairlawn Volunteer Fire Company	July 11, 2011	Firefighting equipment and personnel
Riner Volunteer Fire Company	June 30, 2011	Firefighting equipment and personnel
Riner Volunteer Rescue Squad	June 30, 2011	Emergency medical services
Town of Dublin	November 18, 2010	Firefighting equipment and personnel
Pulaski County Board of Supervisors	January 22, 2007	FCC licensed radio frequencies for communication
Town of Christiansburg	October 4, 2006	Firefighting equipment and personnel
Community of Riner	August 31, 2006	Firefighting equipment and personnel
Federal Bureau of Investigation, Richmond Division	<u>June 9, 2003</u>	Law enforcement for major disruptions or special threats
Town of Blacksburg	October 8, 2002	Firefighting equipment and personnel
Town of Pulaski	<u>2002</u>	Firefighting equipment and personnel
Community of Long Shop/McCoy	<u>September 10, 2002</u>	Firefighting equipment and personnel
United States Army Research, Development, and Acquisition Information Services Activity	June 26, 1992	Force-Protection Support Responsibilities

TABLE 2 MUTUAL ASSISTANCE AGREEMENTS WITH LOCAL MEDICAL FACILITIES

ENTITY	DATE OF AGREEMENT	SERVICES INCLUDED
LewisGale Hospital Montgomery	August 18, 2011	Emergency medical services
Carilion New River Valley Medical Center	<u>July 14, 2011</u>	Emergency medical services
LewisGale Hospital Pulaski	<u>July 7, 2011</u>	Emergency medical services
Pulaski Community Hospital	<u>September 14, 2010</u>	Emergency medical services

Remove this page and insert the following:

Appendix C Appendix C from Contingency Plan submitted with ATK ltr dtd 12 Jan. Sept. 2001



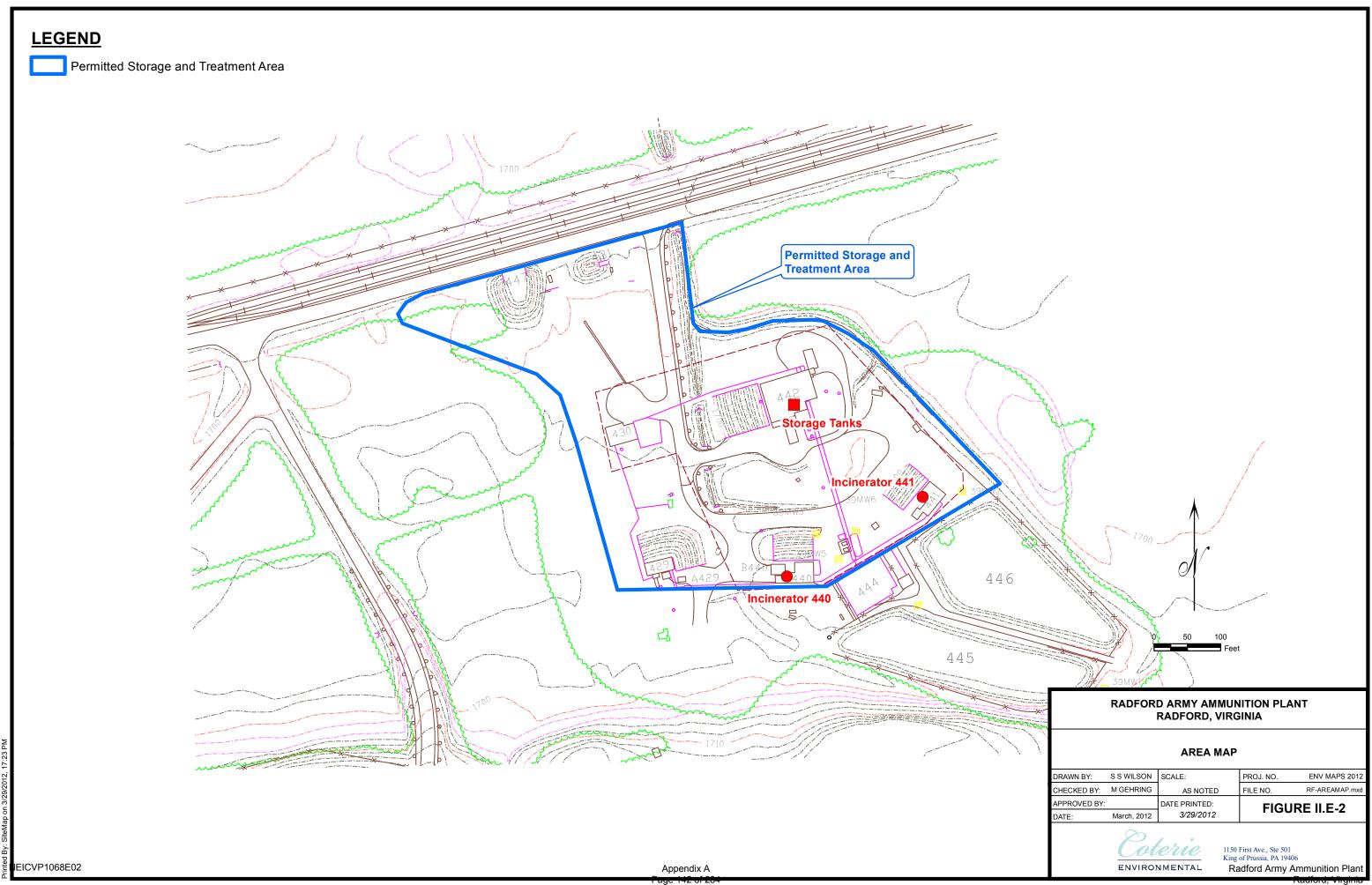
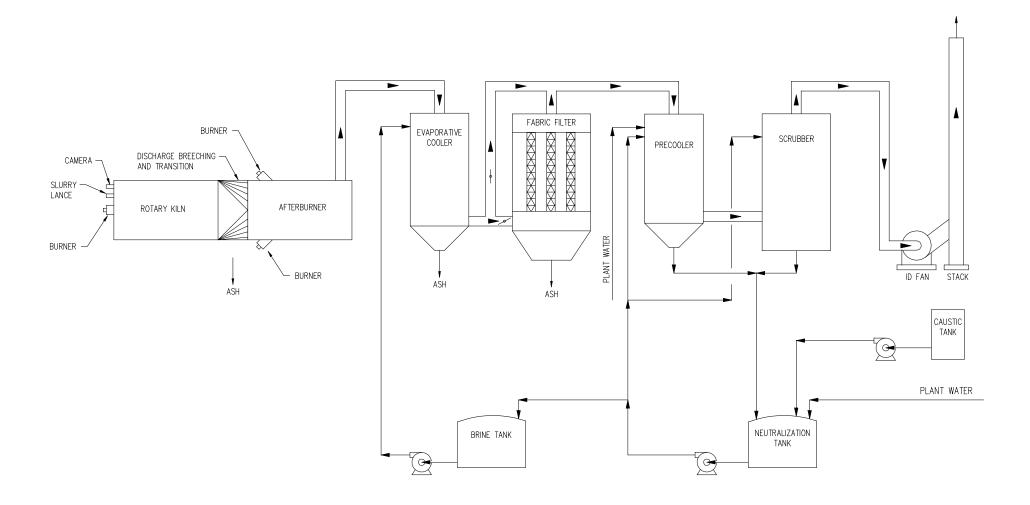


FIGURE II.E-3 INCINERATOR PROCESS SCHEMATIC



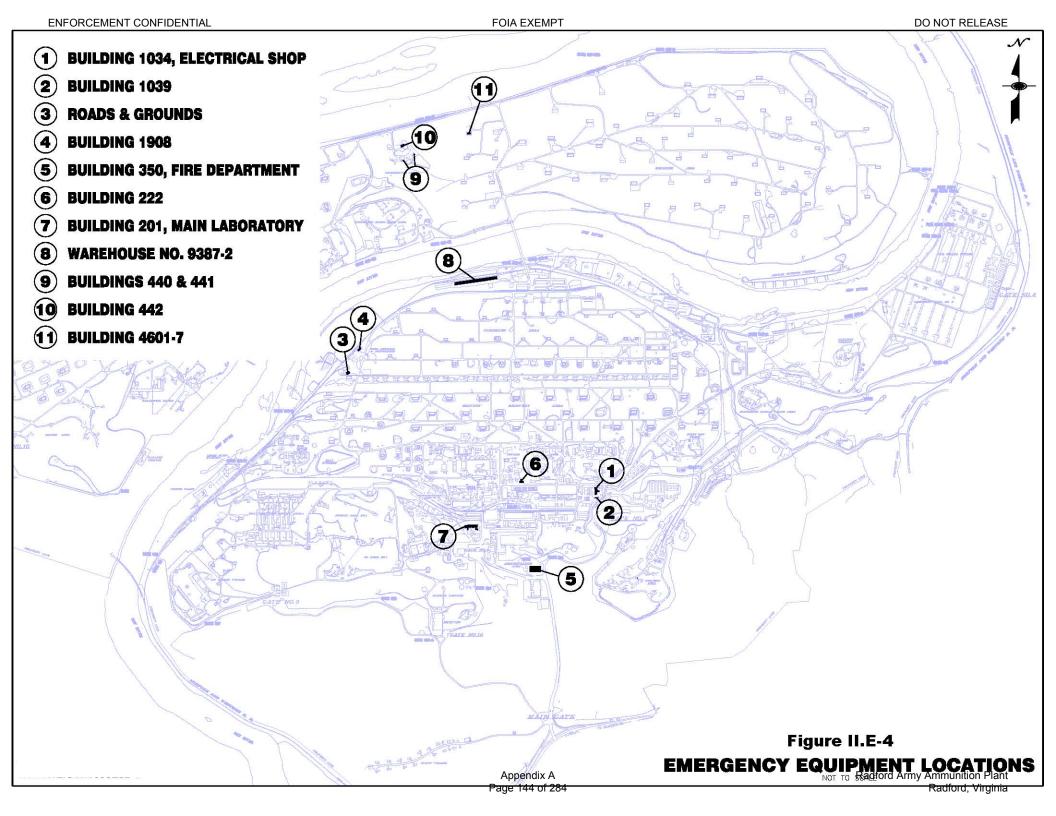
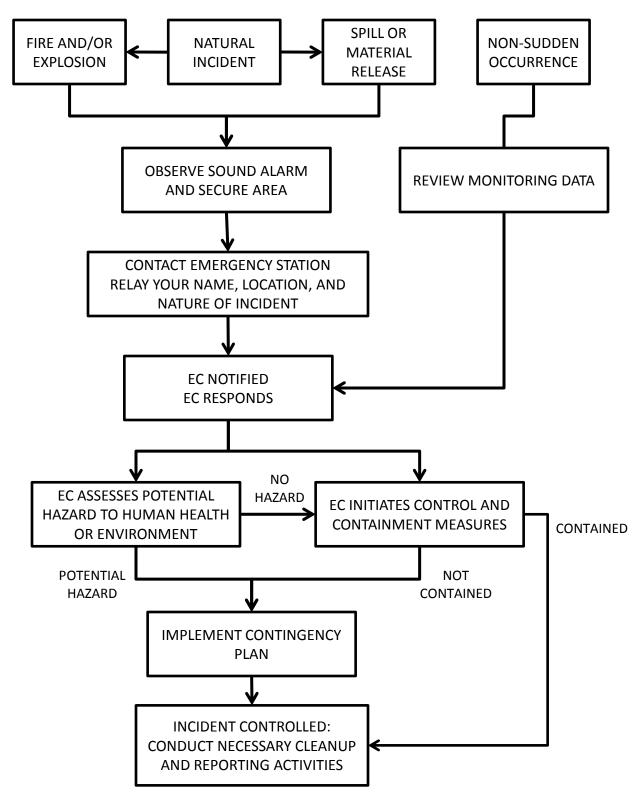
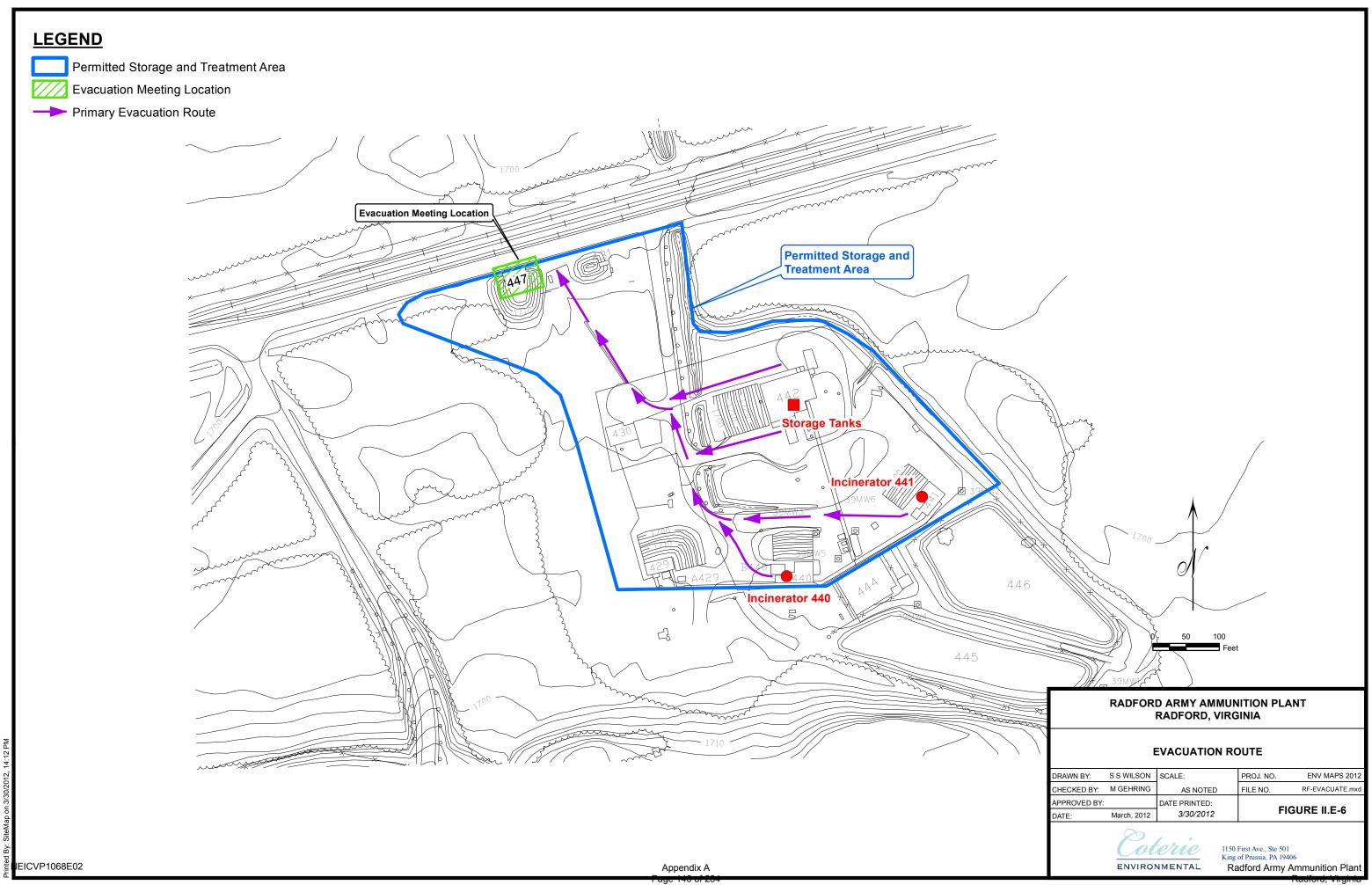


FIGURE II.E-5
CONTINGENCY PLAN IMPLEMENTATION LOGIC DIAGRAM



EC: Emergency Coordinator



ATTACHMENT II.F
CLOSURE PLAN

ATTACHMENT II.F - CLOSURE PLAN

The following text was excerpted from RFAAP's January 12, 2001 submittal. The original fomatting and numbering scheme is retained in order to simplify the anticipated inclusion of additional hazardous waste management units (e.g., the Open Burning Grounds).

II.F.1 _____INTRODUCTION

This Closure Plan has been prepared for the Waste Propellant Incinerator hazardous waste incinerators and associated storage/treatment tanks (herein referred to as the Incinerator), the permitted treatment and storage and treatment units area), at the Radford Army Ammunition Plant (RFAAP). The Incinerator is a permitted treatment and storage unit. This section presents the purpose of the Closure Plan, background information on the RFAAP, I and the incinerators, and a summary of information contained within the Closure Plan.

II.F.1a 1.1 Purpose

This Closure Plan has been prepared for the facility as part of a Hazardous Waste Management Permit Application for the RFAAP. The purpose of the Closure Plan is to develop a closure strategy that assures the RFAAP will close the hazardous waste facilities in a manner that:

- (a) Minimizes the need for further maintenance; and
- (b) Controls, minimizes or eliminates, to the extent necessary to protect human health and the environment, post-closure escape of hazardous waste, hazardous constituents, leachate, contaminated run-off, or hazardous waste decomposition products to the ground or surface waters or to the atmosphere; and
- (c) Complies with the closure requirements of 9 VAC 20-60-264, 40 CFR 264 Subpart G and 264.197 and 264.351.

H.F.1aII.F.1b 1.2 Background

This section provides a brief overview of the operations at RFAAP and those operations performed at the Incinerator permitted storage and treatment area.

1.2.1 RFAAP Operations

The RFAAP encompasses approximately 4,104 acres and is located in southwest Virginia within Pulaski and Montgomery Counties as shown in Figure 4<u>II.F-1</u>. The RFAAP is located approximately 5 miles northeast of the City of Radford, 10 miles west of Blacksburg, and 47 miles southwest of Roanoke. The New River separates Pulaski and Montgomery counties and also divides the RFAAP into two portions commonly known as the Horseshoe Area and Main Manufacturing Area. These two areas and the approximate boundary of the RFAAP are shown on Figure 4<u>II.F-2</u>.

The permitted storage and treatment area is located within the north central portion of the Horseshoe Area as shown in Figure II.F-2 and is used for the incineration of waste energetics. Figure II.F-3 shows the boundary of the area and the locations of the actual structures.

RFAAP is a government-owned, contractor-operated (GOCO) industrial installation responsible to the U.S. Army—Armament, Munitions and Chemical Command whose. The mission of the RFAAP is to manufacture propellants, explosives, and chemical materials as assigned. The Alliant Powder and Ammunition Company, L.L.C. (Alliant) currently is the operator of the facility under a Facility Use contract. As a GOCO operation, RFAAP has both Government and Contractor organizations. For the purpose of this permit application, the facility consists of all contiguous portions of the RFAAP—under the control of the either the U.S. Army or Alliant (permitees). The facility specifically includes both the Horseshoe Area and the Main Manufacturing area. Wastes from onsite activities (including those of both the operating contractor and tenants) are managed in the permitted storage and treatment area. Additionally, wastes from the nearby New River Unit (NRU) are handled at the site. No other "offsite" wastes are managed at the facility.

The facility was first constructed in 1940 and began operations producing smokeless powder (single base, double base, and triple base propellants) in 1941. Since that time various processes/products have been added to the facility including production of cast propellants, trinitrotoluene (TNT), commercial propellants, and load, assemble and pack facilities. Specific operations vary based upon contracted capacity and products from the Department of Defense and U.S. allies.

1.2.2 Incinerator Operations

The Incinerator is located within the north central portion of the Horseshoe Area as shown in Figure 1 and is used for the incineration of waste propellant. Figure 2 shows the Incinerator boundary and the locations of the actual structures.

Operations included in the permitted storage and treatment area include grinding, tank storage and treatment, and incineration equipment. The primary structures included in the permitted storage and treatment area are as follows:

Comment [RFAAP1]: Revised this section to be consistent with other sections in the permit.

- The Grinder Building (identified as Building/Account No. 442), where wastes are ground into small pieces prior to being mixed into the slurry and incinerated. The Grinder Building houses the two permitted storage tanks.
- Incinerators 440 and 441 (identified as Accounts 440 and 441), where the slurried wastes are treated in accordance with this Permit and the Hazardous Waste Combustor National Emission Standards for Hazardous Air Pollutants.

The following areas are specifically excluded from the "permitted treatment and storage area" (refer to Figure II.F-3 for structure designations) as these are included in the USEPA RCRA Corrective Action Permit or were closed under previous closure plans administered by the DEQ:

Attachment II.F

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- Settling Ponds #1 and #2 (identified as Accounts 445 and 446), which are included as Solid Waste Management Unit (SWMU) No. 39 in the USEPA RCRA Corrective Action Permit:
- Incinerator Fuel Oil Storage Units, including Structures 432 and 443, which were underground storage tanks used for fuel oil storage and were previously closed under a plan administered by the DEQ;
- Spray Pond (identified as Account 444), which was identified as Hazardous Waste
 Management Unit (HWMU) No. 39 and was previously closed under a plan administered by the DEQ; and
- Ancillary Building A-444, which served as the pumphouse for the spray pond and was previously closed under a plan administered by the DEQ.

In addition to these areas, there are several other structures in the general vicinity of the incinerators that are not included in the permitted storage and treatment area because they are not used to accumulate waste for periods greater than 90 days. These buildings and structures include:

- The incinerator control room and adjacent supply area (identified as Buildings 431 and 447);
- Temporary waste accumulation area (identified as Building 430), which is used to accumulate wastes for < 90 periods prior to treatment in the incinerators; and
- Ancillary buildings in the incinerator complex that store supplies and/or instrument equipment and calibration gases (identified as Accounts A-440, B-440, and A-441).

Operations included as part of the Incinerator include grinding, tank storage and treatment, and incineration equipment as follows:

- Grind Houses (Structures 430 and 442)
- Control Houses (Structures 431 and 447)
- Incinerator Buildings (Structures 440 and 441); and
- Ancillary Buildings (Structures A 440, B 440, and A 441

Structures that are specifically excluded from the Incinerator include the following:

- Incinerator fuel oil storage units (including Structures 432 and 443)
- Spray pond (Structure 444)
- Settling ponds #1 and #2 (Structures 445 and 446); and
- Ancillary Building (Structure A 444).

The Spray Pond has been clean closed for soils by the VDEQ and Settling Ponds #1 and #2 are currently managed through the U.S. Environmental Protection Agency (EPA).

Specific operations that are performed at the Incinerator are described below. Figure II.F-4 is a schematic diagram that shows how the wastes are processed as part of the treatment process.

Attachment II.F

- Waste materials are transported from production areas in < 20 gallon containers to
 a < 90 day accumulation area at Building 430 or Building 4601-7. (Note: the
 wastes are accumulated for less than 90 days and therefore these buildings are not
 permitted container storage facilities).
- 2. At the Grind House (Building 442) the energetic waste is loaded onto a trolley, dumped into a hopper, and fed onto a conveyor. The material is sprayed with water to minimize the chance of a waste explosion. Oversize and metallic materials are removed from the waste stream on the conveyor and dropped into the grinder feed hopper. Again the waste is sprayed with water to minimize the potential for an explosion. The waste is then ground and added to one of two slurry tanks. In the slurry tanks the waste is mixed with water to form a slurry for incineration. These slurry tanks are not completely emptied every 90 days; therefore, these tanks have been permitted as > 90 day storage tanks.
- 3. The waste slurry is circulated through a piping system to the incinerators' feed pump house and back to the slurry tank to prevent settling and build up of solids in the lines. Portions of this flow are directed from the feed pump house to the incinerators for treatment.
- 4. Residue from the incineration system is collected in ash buggies and drums and is accumulated. The ash is staged onsite pending sample analysis and is then disposed in a properly permitted disposal facility. Specific operations that are performed at the Incinerator are listed below. Figure 3 is a schematic diagram that shows how waste propellants are processed as part of the treatment process.
- 1. Waste materials are transported from production areas in <20 gallon containers to an accumulation area at Building 430 or Building 4601.7. (Note: the wastes are accumulated for less than 90 days and therefore the building is not a permitted storage facility for these containers).
- 2. At the Grind House (Building 442) the waste propellant is loaded into a trolley and dumped into a hopper and fed onto a conveyor. The material is sprayed with water to minimize the chance of a waste explosion. Oversize and metallic materials are removed from the waste stream on the conveyor which is then dropped into the grinder feed hopper. Again the waste is sprayed with water to minimize the potential for an explosion. The waste is then ground and added to one of two slurry tanks. In the slurry tanks the waste is mixed with liquid to form a slurry for incineration. These slurry tanks are not completely emptied every 90 days; therefore, the storage permit is being sought for the slurry tanks in the Grinder Building.
- 3. The waste slurry is circulated through a piping system to the incinerators' feed pump house and back to the slurry tank to prevent settling and build up of solids in the lines. Portions of this flow are directed from the feed pump house to the incinerators for treatment.

4. Residue from the incinerators is collected in an ash buggy. The ash is staged onsiteonsite pending sample analysis and disposal in a properly permitted disposal facility. Residiue is also collected from the Bag House and evaporative cooler.

1.2.3 Reserved

H.F.1b1.3 REPORT FORMAT

THIS CLOSURE PLAN CONTAINS THE REQUIRED INFORMATION FOR A HAZARDOUS WASTE UNIT CLOSURE PLAN AS IDENTIFIED IN 9 VAC 20-60-264 AND 40 CFR PART 264 SUBPART G. THE CONTENTS OF THIS PLAN ARE AS LISTED BELOW.

- SECTION 2 CONTAINS A SUMMARY OF GEOLOGIC, HYDROGEOLOGIC, AND HYDRAULIC SETTINGS OF THE INCINERATOR.
- SECTION 3 DESCRIBES THE TYPES OF HAZARDOUS WASTES MANAGED AT THE INCINERATOR.
- SECTION 4 EVALUATES SOIL AND GROUNDWATER IMPACTS THAT ARE
 KNOWN TO BE OR MAY BE EXPECTED TO BE PRESENT AT THE
 INCINERATOR.
- SECTION 5 CONTAINS A DESCRIPTION OF THE GENERAL CLOSURE APPROACH AND OBJECTIVES.
- SECTION 6 PRESENTS THE DETAILED CLOSURE APPROACH AND PROCEDURES.
- SECTION 7 DESCRIBES POST CLOSURE CARE THAT MAY BE REQUIRED.

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- SECTION 8 PRESENTS THE CLOSURE SCHEDULES.
- SECTION 9 INCLUDES REQUIREMENTS FOR CLOSURE PLAN MODIFICATION.

Attachment II.F

H.F.2 2.0 GEOLOGIC, HYDROGEOLOGIC AND HYDROLOGIC SUMMARY

Comment [RFAAP2]: Removed this as it is not an applicable requirement for a closure plan.

THIS SECTION PROVIDES A SUMMARY OF RELEVANT PHYSIOGRAPHIC, GEOLOGIC, HYDROGEOLOGIC, AND HYDROLOGIC CONDITIONS PRESENT AT THE RFAAP, THE INCINERATOR.

H.F.2a2.1 GENERAL RFAAP SETTING

THE RFAAP IS LOCATED WITHIN THE VALLEY AND RIDGE
PHYSIOGRAPHIC PROVINCE, WHICH IS PART OF THE APPALACHIAN
HIGHLANDS. ELONGATED, NARROW, RIDGES CONSISTING OF
RELATIVELY RESISTANT SANDSTONES CHARACTERIZE THIS AREA AND
DOLOMITES THAT STRIKE SOUTHWEST TO NORTHEAST WITH NARROW
VALLEYS OF VARYING LENGTH AND WIDTH BETWEEN THESE RIDGES.
THIS TOPOGRAPHY IS THE RESULT OF A COMPLEX SEQUENCE OF THRUST
FAULTING AND FOLDING OVER THE PAST 100 MILLION YEARS.

— SEDIMENTARY ROCKS CONSISTING OF LIMESTONE, DOLOMITE, AND MINOR SANDSTONE UNDERLIE THE RADFORD AREA. THESE ROCKS ARE COMPLEXLY FOLDED, FAULTED, AND FRACTURED. THE REAAP SITE IS CONSTRUCTED ABOVE THE ELBROOK FORMATION, WHICH IS OF THE CAMBRIAN ERA AND CONSISTS OF DOLOMITE, SHALE, AND MINOR LIMESTONE. TYPICAL FEATURES OF THIS FORMATION ARE SINKHOLES, SOLUTION CHANNELS, AND A PINNACLED BEDROCK SURFACE. SURFICIAL MATERIAL CONSISTS OF RESIDUAL SOILS CONSISTING PRIMARILY OF SILTS AND CLAYS DERIVED FROM THE UNDERLYING ROCK. ALLUVIAL DEPOSITS ARE ALSO PRESENT ALONG THE BANKS OF THE NEW RIVER AND ADJOINING FLOOD PLAIN. THESE ALLUVIAL SOILS CONSIST MICACEOUS SILTS AND SANDY CLAYS UNDERLAIN BY COARSER DEPOSITS OF SILTY AND CLAYEY SANDS AND GRAVEL. COBBLES AND BOULDERS ARE SCATTERED WITHIN THE ALLUVIAL DEPOSITS.

GROUNDWATER IN THE VICINITY OF THE RFAAP OCCURS AT RELATIVELY SHALLOW DEPTHS IN BOTH SOIL AND BEDROCK AND IS TYPICALLY RECHARGED BY PRECIPITATION AND STREAM FLOWS. GROUNDWATER IN THE TERRACE FORMATIONS TYPICALLY IS FOUND NEAR THE SOIL-BEDROCK INTERFACE. IN FLOOD PLAIN AREAS, GROUNDWATER IS TYPICALLY PRESENT WITHIN THE ALLUVIAL MATERIAL. IN THE LIMESTONE AND DOLOMITE FORMATIONS, GROUNDWATER IS TYPICALLY FOUND IN FRACTURES AND SOLUTION CHANNELS AS IS TYPICAL FOR SUCH CARBONATE FORMATIONS.

THE NEW RIVER FLOWS THROUGH THE RFAAP AS SHOWN ON FIGURE 1.
THE RIVER SEPARATES PULASKI AND MONTGOMERY COUNTIES AND
SERVES TO DIVIDE THE RFAAP FACILITY INTO TWO DISTINCT SECTIONS.
SURFACE WATER FLOWS GENERALLY DRAIN TO THE NEW RIVER WITH

THE EXCEPTION OF PORTIONS OF THE SOUTHEASTERN AREA OF THE PLANT. SURFACE WATER IN THIS AREA FLOWS TO STROUBLES CREEK, WHICH EMPTIES INTO THE NEW RIVER (ENGINEERING SCIENCE, 1985, COMMONWEALTH OF VIRGINIA, 1993).

H.F.2b2.2 INCINERATOR CONDITIONS

THE INCINERATOR IS SITUATED ON RELATIVELY FLAT TERRACED LAND APPROXIMATELY 800 FEET FROM THE NEW RIVER AND AT AN ELEVATION OF APPROXIMATELY 1,700 FEET ABOVE MEAN SEA LEVEL (MSL). BASED UPON OTHER WORK PERFORMED IN THE VICINITY OF THE PERMITTED TREATMENT AND STORAGE AREA, 5 TO 10 FEET OF SILTY CLAYS, CLAYEY SILTS, AND CLAYEY/SILTY SANDS UNDERLIE THE SITE. BETWEEN 10 TO 20 FEET BELOW GROUND SURFACE, THE SOILS BECOME COARSER GRADING TO SILTY SANDS AND SILTY/SANDY GRAVELS. BEDROCK CONSISTING OF LIMESTONE AND SOME DOLOSTONE IS PRESENT AT A DEPTH OF APPROXIMATELY 20 FEET BELOW GROUND SURFACE. SOLUTION CHANNELS AND SOME VOIDS HAVE BEEN IDENTIFIED IN THE LIMESTONE BEDROCK.

GROUNDWATER APPEARS TO BE PRESENT AT A DEPTH OF
APPROXIMATELY 20 FEET BELOW GROUND SURFACE. THE WATER TABLE
IS PRESENT AT THE SOIL/BEDROCK INTERFACE OR IN THE UPPER
PORTION OF THE BEDROCK (DRAPER ADEN ASSOCIATES, 1999).

SURFACE WATER RUNOFF FROM THE INCINERATOR FLOWS OVERLAND INTO DRAINAGE DITCHES. THESE DITCHES CONVERGE AND FLOW NORTH TO THE NEW RIVER.

2.3 RESERVED

Attachment II.F

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II.F.2 3.0 HAZARDOUS WASTE CHARACTERISTICS ANALYSIS

This section provides a general discussion of the types and sources of hazardous wastes managed at the <u>Incineratorpermitted storage and treatment area</u>. This information includes the general types of wastes managed, specific waste streams, and maximum hazardous waste inventory.

H.F.3aH.F.2a 3.1 General Waste Types

The hazardous wastes that are managed (treated and stored) at the permitted facility include waste energetic materials and spill "cleanup" residues generated at the facility or the nearby NRU. These wastes are hazardous due to their ignitability (D001) and/or reactivity (D003). Additionally, some of the wastes may exhibit the toxicity characteristic for certain metals and/or 2,4-dinitrotoluene. A detailed description of the wastes is provided in the Waste Analysis Plan in Attachment II.A of this Permit. The hazardous wastes that are managed (treated and stored) at the permitted facility include waste propellants and spill "cleanup" residues generated at the facility which are hazardous due to their ignitability (D001) or reactivity (D003). Only hazardous wastes identified in the permit Waste Analysis Plan will be treated or stored at the Incinerator and/or treated at the OB Ground. These wastes include the following:

- 1. Wastes which exhibit only the following hazardous characteristic(s):
 - Reactivity (hazardous waste number D003) as specified in 9 VAC 20-60-261: 40 CFR Part 261.23:
 - b. Reactivity (hazardous waste number D003) as specified in 9 VAC 20 60-261; 40 CFR 261.23 and the characteristic of toxicity, as specified in 9 VAC 20 60 261; 40 CFR 261.24, for one of the following constituents:
 - Lead (hazardous waste number D008);
 - ii. 2,4 Dinitrotoluene (hazardous waste number D030); and/or
 - iii. Barium (hazardous waste number D005)
 - c. Ignitability (hazardous waste number D001) as specified in 9 VAC 20-60-261; 40 CFR 261.21. Ignitable wastes are limited to clean up residue of propellant ingredients. Ignitable wastes are mixed with sawdust and are not a liquid when brought to the permitted treatment and storage area.
- Wastes which are not listed pursuant to 9 VAC 20 60 261; 40 CFR 261.31, 32, and 33; and
- 3. Wastes which are one of the following (as identified in the Waste Analysis Plan):

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Comment [RFAAP3]: Revised these sections to

be consistent with other sections of the permit.

- Off specification propellants and propellant intermediates, generated at the facility;
- b. Liquid wastes, consisting of water and diethylene or triethylene glycol;
- Load, assemble and pack waste, consisting of energetic materials from assembling cartridges;
- d. Specialty product wastes containing propellant with nitrocellulose, nitrate esters, nitroguanidine, solid explosives, and one of the following combinations of additional materials:
 - i. 40 CFR 261 Appendix VIII constituents (D003)
 - ii. 40 CFR 261 Appendix VIII constituents, chlorides and/or perchlorates (D003)
 - iii. 40 CFR 261 Appendix VIII constituents and/or metals (D003, D004 D010)
- e. Other miscellaneous waste, described in Module II, Attachment II.B, Appendix II.B 1, Table I, as one of the following:
 - i. Ignitable and reactive liquids in sawdust (D001, D003)
 - ii. Propellant laboratory waste (D003, D008, D030, D004)
 - iii. Pit cotton (Waste Nitrocellulose)
 - iv. Dinitrotoluene and Trinitrotoluene Wastes from manufacturing that are not listed wastes

H.F.3bII.F.2b3.2 Waste Composition

The composition of the wastes fed to the incinerators varies over time due to changes in the production schedule at the RFAAP. Generally, these wastes include miscellaneous energetic wastes. For purposes of classification under RCRA, these wastes have been segregated into waste groups that differ based on their primary components and RCRA waste codes. There are no wastes managed in the permitted storage and treatment area that are incompatible with one another.

The composition of the waste propellant mixtures fed to the Incinerator varies over time due to changes in the production schedule at the RFAAP. Off specification propellants and propellant intermediates, dinitrotoluene (including production intermediates), liquid wastes, load, assemble and pack waste, specialty product waste and other miscellaneous wastes are the categories of wastes which may be stored, treated and incinerated at the Incinerator. These categories are segregated into 19 distinct waste groups, as listed in Table 1; all wastes that are stored, treated, and incinerated at the facility fall into one of these groups.

These waste streams are processed as described in Sections 1.2.2 and 1.2.3 and are handled in accordance with the Waste Analysis Plan.

H.F.3e II.F.2c 3.3 Incinerator Maximum Hazardous Waste Inventory

At any given point in time, the hazardous wastes present in the permitted storage and treatment area are as follows:

Attachment II.F

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- Waste slurry contained in the two slurry tanks;
- Accumulated waste awaiting processing in the grinder; and
- Potentially hazardous ash accumulated in collection chambers at the incinerators.

The actual maximum quantity of reactive material (waste propellantenergetics) allowed in the Grinder Building at any time is 5,000 pounds per building explosive design criteria. This actual maximum quantity includes any waste propellantenergetic material in the two slurry tanks, as well as any waste propellantenergetic material in the Grinder Building that is waiting to be placed into the slurry tanks. However, the actual inventory of waste energetic material in the building prior to closure should be significantly less, as the slurry lines and tanks would be burned out and flushed with water prior to initiating closure. This 5,000 pound maximum quantity limit is an administrative control established by the permittees. A placard stating the 5,000 pound maximum is affixed to the entrance of the Grinder Building. As part of the overall facility safety controls, this limit on the maximum quantity of waste propellant allowed in the Grinder Building serves to minimize the effects that any potential fires or explosions would have on surrounding structures.

The two slurry tanks each have a capacity of 1,700 gallons, for a total capacity of 3,400 gallons. Using the most conservative figures, the slurry consists of a mixture of 3.5 parts water to 1 part waste propellant (by weight). At this mixture ratio, the slurry is not explosive as long as the slurry agitators are operating constantly. Assuming that the tank systems are filled to capacity with slurry at this mixture ratio, the potential maximum quantity of waste propellant that could be present in 3,400 gallons of slurry is 6,719 pounds. This would exceed the waste propellant administrative control limit of 5,000 pounds for the Grinder Building.

Because of this administrative control, the maximum amount of waste at the Incinerator to be treated would be 5,000 pounds. The waste in containers will be treated at either the OB Ground or another permitted facility. The contents of the slurry tanks will be characterized for treatment at a permitted facility.

____ The actual inventory of waste propellant within the slurry prior to closure should be significantly less, as the slurry lines and tanks would be flushed with water. This water would be incinerated prior to the initiation of closure activities.

3.4 Reserved

H.F.4II.F.3 4.0 REVIEW OF POTENTIAL IMPACTS

Comment [RFAAP4]: Updated this section based on new data that is available.

This section contains a review of potential impacts to soil and groundwater in the permitted treatment and storage facilities as a result of hazardous waste management activities. These potential impacts will be evaluated and appropriately addressed as part of the closure activities.

4.1 Incinerator

II.F.3a 4.1.1 Impacts to Soil

In accordance with the EPA Corrective Action Permit, a Plant-wide Background Study was completed in September, 2000. The soil samples collected during the Plant-wide Background Study were analyzed for all of the hazardous constituents listed in Appendix VIII of 40 CFR Part 261. The report on these analyses was submitted to and approved by the VDEQ in May 2002. Data from this sampling event or another existing and more recent event The analytical results for the Plant wide Background Study were not yet available at the time of this Closure Plan; however, the analytical results will be forwarded to the VDEQ when they become available. This data—will be used in the evaluation of soils during Incinerator—closure_ if it is deemed appropriate and current by the VDEQ at the time of actual closure. If the data is not acceptable to the VDEQ, alternative background sampling locations and analytical results will be submitted to the VDEQ for approval.

II.F.3b 4.1.2 Impacts to Groundwater

Groundwater in the vicinity of the Incinerator-incinerators has been was evaluated for potential impacts in relation to the closed as part of the RCRA Facility Investigation (RFI)/Corrective Measures Study (CMS) of solid waste management unit (SWMU 39) near the incinerators. Incinerator Spray Pond The results of this study were submitted to the VDEQ in August 2005. in accordance with the Virginia Hazardous Waste Management Regulations (9 VAC 20-60) and Title 40 of the Code of Federal Regulations, Part 265.93 (40 CFR 265.93). This data and/or other or other existing data from a more recent groundwater information investigation will be used in the evaluation of groundwater during facility closure if it is deemed appropriate and current by the VDEQ at the time of actual closure. If the data is not acceptable to the VDEQ, alternative groundwater monitoring locations and/or analytical results will be submitted to the VDEQ for approval.

H.F.5

H.F.5a4.2 RESERVED

H.F.6II.F.4

5.0 GENERAL CLOSURE ANALYSIS

This section presents the general goals and criteria for developing a closure strategy and developing criteria for closure. Feasible options for closure of the facilities are reviewed and evaluated with regard to regulatory requirements and environmental protection, economic feasibility, and practicality.

H.F.6aII.F.4a 5.1 General Closure Criteria

As stated in the introduction, the purpose of the Closure Plan is to develop a closure strategy that assures the RFAAP will close the hazardous waste facilities in a manner that:

- (a) Minimizes the need for further maintenance; and
- (b) Controls, minimizes or eliminates, to the extent necessary to protect human health and the environment, post-closure escape of hazardous waste, hazardous constituents, leachate, contaminated run-off, or hazardous waste decomposition products to the ground or surface waters or to the atmosphere; and
- (c) Complies with the closure requirements of 9 VAC 20-60-264; 40 CFR 264 Subpart G, and 264.197 and 264.351.

RFAAP intends to remove all hazardous waste and all hazardous waste constituents at the Incinerator at the time of closure—(clean closure). This will be accomplished by assessing samples against cleaning to established background standards and/or, or by cleaning to risk-based standards if cleaning to background standards cannot be accomplished. The risk-based standards used will be those that are current at the time of closure. The risk assessment protocol to be used will be submitted for VDEQ approval at the time of closure.

H.F.6bH.F.4b 5.2 Closure Alternatives

Various alternatives are available for closure of the Incinerator. The various components of the facilities that will need to be addressed as part of the closure process include the physical structures included as part of the Incinerator as well as the soil and groundwater underlying these facilities.

5.2.1 Closure Alternatives for Structures

Once hazardous waste treatment and/or storage operations cease at the Incinerator it will be necessary to partially or completely close or close the facilities as appropriate. Two basic options are available for closure of these facilities.

First a hazardous waste contractor can dismantle the equipment subject to closure. The dismantled equipment can then be shipped off site offsite for treatment/disposal. A hazardous waste determination will need to be performed for each waste stream followed by the necessary waste characterization. Due to the types of wastes treated it is likely that much of the waste handling equipment would require handling as a hazardous waste.

The second closure option would require that all waste handling equipment be decontaminated. Once decontaminated the equipment can then be dismantled and disposed of as non-hazardous solid waste or recycled as scrap material. This option will require greater on-siteonsite management of decontamination fluids, wash water, decontamination verification, and overall management. However, overall costs should be significantly lower as the only hazardous waste generated that would require off-siteoffsite treatment or disposal would likely be the decontamination/wash water as opposed to significant quantities of contaminated debris as generated in the first option.

Based upon the economic advantages and potential for reduced quantities of hazardous wastes, RFAAP will decontaminate equipment to be closed prior to dismantling.

5.2.2 Closure Alternatives for Soil and Groundwater

Once the closed structures have been decontaminated it will be necessary to address any potential impacts to soil and groundwater. The first step in this process will be to implement a sampling protocol to determine the following:

- 1. If soils under the Incinerator structure(s) have been contaminated; and
- 2.• If <u>any</u> impacts <u>that did occur</u> have migrated through <u>the</u> soil to the uppermost aquifer.

Once the extent of any impacts is determined, a closure approach for the soils and groundwater will be developed. Four Three basic closure options are available depending on the impacts encountered.—:

- Option 1: If no impact to groundwater is encountered, <u>pursue</u> clean closure or riskbased closure for <u>any contaminated</u> soil <u>impacts are feasible options</u>.
- Option 2: If limited impact to groundwater is encountered, then removeal of source material or "hot spots" and perform limited follow-on monitoring as appropriate followed by a period of monitoring may be appropriate.
- Option 3: IfFinally, should_significant groundwater impact be is discovered, remove source removal-material and/or provide control along with some means of groundwater treatment/containmentcontrol may be necessary.

If there is no adverse impact to groundwater, RFAAP will pursue a clean closure option. However, the use of risk based closure for soils may be desirable if the quantity of soil requiring treatment is large enough to make clean closure economically unrealistic. In such a scenario, a risk based cleanup goal will be determined that protects the surrounding areas while allowing high levels of waste materials to remain in soils at the closed facility. A deed restriction will be required as part of such actions.

If limited groundwater impact is encountered it may be feasible for RFAAP to remove source material in the overlying soils and monitor groundwater quality as part of a natural attenuation program.

Finally, should significant soil and groundwater impacts be detected it will then be necessary to implement source soil removal/containment actions as well as groundwater containment or treatment measures.

At this time there are various options for excavating soil for off-siteoffsite treatment/disposal as well as various on siteonsite and in-situ treatment methods that may be applicable depending upon the exact nature of impacts to soil. For the purpose of this Closure Plan it is assumed that any potential soil impacts will be limited in nature and that soil excavation will be a feasible and cost effective closure option.

It should be noted that actual closure of the facilities is not anticipated for some time. As such, innovative treatment alternatives may become available that may be more favorable to excavation and off-siteoffsite treatment/disposal. Based upon the actual extent of any impacts and technological advances, RFAAP may choose to modify this Closure Plan based upon findings when each facility is closed.

II.F.4c 5.3 Partial and Final Closure

Final closure of the units is not anticipated in the near future, nor is Ppartial closure is not anticipated for any portions of the Incinerator. At such time that closure is expected, this Closure Plan will be reviewed an updated as necessary to reflect any changes to the closure philosophy or expected procedures. Additionally, However, should any portions of the facilities be closed prior to final closure, those portions will be closed in accordance with all applicable closure procedures in this Closure Plan or an appropriate updated version of it.

H.F.711.F.5

6.0 DETAILED CLOSURE PROCESS

This section presents more a detailed processes—description of the closure process that is anticipated for the permitted storage and treatment area, considering the that will be used to close the Incinerator based upon the closure alternative selected in Section—II.F.54.0. RFAAP has implemented a number of standard operating procedures that will be used to support the Incinerator closure. Pertinent elements of these procedures are incorporated into the closure process as described in the following sections. This process will include the following steps:

- 1. Inventory Removal
- 2. Site Preparation
- 3. Closure Construction
- 4. Soil Treatment
- 5. Sampling and Analysis
- 6. Cover System Evaluation
- 7. Interim Actions

RFAAP will remove all hazardous waste and all hazardous waste constituents at the Incinerator at the time of closure (clean closure). All equipment and structures which may have contacted hazardous waste will then be decontaminated. Therefore, after closure, no waste is expected to be present at the facilities and post closure maintenance is not anticipated. Figure II.F-5 provides a flow chart outlining the closure approach that is planned. Closure operations will occur following a predetermined approach as detailed and listed below and shown in the flow chart in Figure 5.

Specific items that are included in this section include the following:

- 1. Inventory Removal
- 2. Site Preparation
- Closure Construction
- 4. Soil Treatment
- Sampling and Analysis
- 6. Cover System Evaluation
- 7. Interim Actions

H.F.7a II.F.5a 6.1 Inventory Removal

The initial step in the closure process will be treatment and removal of the remaining hazardous waste. The procedures for treating/removing the waste inventory is included along with procedures for managing any remaining wastes.

6.1.1 <u>Treatment of Remaining Waste and Collection of Residuals</u>

6.1.1.1 Incinerator

After receipt of the final quantity of hazardous waste at the facility (or specific portion thereof identified for partial closure), all hazardous waste inventory will be removed by processing through the grinder, treatment and storage slurry tanks, and incinerators in the usual manner. Any remaining waste that cannot be processed through the incinerator will be transported for treatment/disposal at a permitted facility. Likewise, all incinerator ash will be collected and disposed of in accordance with standard operating procedures.

Any hazardous waste or waste slurry remaining in Tanks 1A, or 1B, the make-up tank, or the catch tank that cannot be incinerated, as well as any slurry or rinseate resulting from the slurry loop line backflush after completion of incineration of the final hazardous waste batch, will be removed for treatment or disposal as hazardous waste. Tanks will be emptied of any remaining waste or waste slurry in accordance with the using the general steps listed below.

- Any remaining waste slurry will be collected in containers for disposal as hazardous waste.
- 2. The make up tank will be inspected for propellant fines <u>and</u>; cleaned as necessary. <u>The contents of the tank will be and the contents</u> transferred to the slurry tanks.
- Propellant fines will then be drained from the slurry tank and collected for disposal. Propellant fines are typically collected by draining the liquid that remains in the tank through a muslin bag.
- 4. The slurry tank will then be flushed with water, again collecting any propellant fines.
- 5. The slurry tank operation will then be shut down.

After all of the tanks are emptied, <u>the</u> secondary containment structures, and the floors and sumps of the tank/grinder in the <u>Grinder building Building</u> and <u>at the</u> incinerators will be visually inspected for any spilled waste. Any waste on the floors will be cleaned up. <u>All</u> and sumps will be cleaned by removing waste with non-sparking tools.

6.1.1.2 Reserved

6.1.2 Management of Residual Wastes

6.1.2.1 Incinerator

Any Remaining waste slurry collected from the tanks either initially or after the emptying and subsequent cleaning operations will be screened to remove the excess water or mixed with sawdust to absorb all free liquids. to create a solid hazardous waste. The procedure will involve mixing 30 pounds of sawdust with 2.5 gallons of waste slurry in a tub to create a maximum of 47 pounds of solid hazardous waste material. The 47 pound tubs of waste material will be labeled as hazardous waste. This material, along with any solid propellant fines collected during the emptying and cleaning operations, will be sent for destruction at the facility's open burning unit (OB Ground) ground or will be manifested to a RCRA permitted off siteoffsite treatment or disposal facility which that is capable of handling the material in accordance with all state and federal laws.

LiAny residual liquids emptied from the tanks will be processed in the facility's wastewater treatment system, if allowable permissible under the facility's VPDES Permit. RFAAP will analyze the liquid to determine if the material is compatible with operations at the biological wastewater treatment plant (WWTP). If treatment is feasible, RFAAP will request a modification to the facility VPDES permit to allow such treatment, if necessary. If such treatment is not feasible, the material will be transferred to drums or other acceptable containers, and will be characterized for the hazardous characteristics of reactivity and toxicityas required for offsite disposal. If hazardous, the material will then be manifested to a RCRA permitted offsiteoffsite treatment or disposal facility that is capable of handling the waste in accordance with all state and federal laws. If non-hazardous, the material will be transported to an appropriate off-siteoffsite treatment or disposal facility in accordance with all state and federal laws.

6.1.2.2 Reserved

H.F.7bII.F.5b 6.2 Site Preparation

Once the remaining hazardous waste inventory is treated, a series of preparatory activities will be performed prior to the start of actual facility closure. These activities will include the following: items.

- Delineation of exclusion zones around the various work areas as needed for the safety of workers involved with the closure operations and those of RFAAP staff in surrounding areas. Specific items will be addressed as part of RFAAP safety policies and health and safety plans developed by any subcontractors involved in the closure operations.
- 2. Establishment of decontamination areas for personnel and equipment involved in the closure operations.
- 3. Establishment of staging areas for uncontaminated demolition debris, contaminated scrap/debris, contained liquids, and other waste streams including containers for any contaminated material. No waste or contaminated material shall be placed on the ground with or without a liner.
- 4. Establishment of temporary facilities required for closure activities (e.g., storage trailers, field office, *etc.*)
- 5. Visual inspection of Aall secondary containment and/or building floor/sump surfaces will be visually inspected for the presence of cracks or gaps. All such cracks or gaps will be sealed with an epoxy sealant in order to assure that wash solution will not migrate into or through the material.
- 6. Other permitting that may be required (*e.g.*, modification of VPDES permit for treatment of wastes generated as part of the closure activities, VPDES storm water permit for construction activities, *etc.*).

H.F.7e 6.3 Decontamination and Closure of the Incinerator Equipment and Structures

6.3.1 Decontamination and Closure of Incinerators

This section presents the processes that will be used to initiate closure of the Incinerator. by performing a burn out of the incinerator after treatment of the final hazardous waste inventory is completed.—This includes a discussion of the burn-out process and a description of how the waste materials will be contained.

6.3.1.1 Burn-Out Process

After incineration of the final quantity of hazardous waste, the incinerators will be operated at or above minimum operating temperature for a period of not less than eight hours. During this period only natural gas fuel will be burned and only clean water will be fed to the incinerator through the slurry feed system. It is the intent of this burn-out process to destroy any residual waste explosives that may remain within the incinerator units.

After the burnout period, the incinerator and air pollution control system will be visually inspected for the presence of any accumulated solid residues. If detected, such residue will be removed as noted in Section 6.3.1.2below.

6.3.1.2 Burn-Out Process Waste Management

Waste generated and/or accumulated at the end of the burn-out process will be collected, analyzed in accordance with the Waste Analysis Planas specified herein, and properly disposed of. The types of wastes that are expected to be encountered include the following:

- Incinerator ash (consisting of the ash and incinerated solids which that accumulate at the kiln breeching, the evaporative cooler, the fabric filter, the precooler, and the scrubber);
- 2. serubber Scrubber water and any scrubber sludge; and
- 3. Fabric filter bags and scrubber packing material (after burn-out process is complete).

These \text{\text{\text{W}}} wastes will be managed as described below.

- 1. All <u>Incinerator_incinerator_ash</u> residue will be analyzed <u>as required for offsite disposal and sent to an appropriately permitted facility for reactivity and toxicity and disposed of off-site at a RCRA-permitted facility.</u>
- 2. Scrubber water will be processed in the RFAAP's wastewater treatment system and discharged in accordance with VPDES permit regulations if the waste is compatible with treatment processes (the VPDES permit will be modified to allow such discharge as needed). Scrubber water that , which cannot be or is otherwise not processed in the RFAAP wastewater treatment system, will be sent off site for treatment and/or disposal in accordance with applicable regulations be analyzed as required for offsite disposal and sent to an appropriately permitted facility.

- 3. Scrubber sludge will be analyzed for toxicity and disposed of off site at a RCRA-permitted facility as required for offsite disposal and sent to an appropriately permitted facility.
- 4. The Ffabric filter bags and the scrubber packing material will be analyzed for toxicity and disposed of off site at as required for offsite disposal and sent to a RCRAn -appropriately permitted facility.

6.3.1.3 <u>Decontamination Verification</u>

Samples will be collected from the incinerator equipment and analyzed—to verify that burn out the decontamination process has been successful before it procedures on the equipment are sufficiently completed prior to is dismantleding. After the burn out process is completed wWipe samples will be taken from throughout the incinerator and air pollution control system—Specifically samples will be taken from the following locations:

- Refractory of primary combustion chamber
- Refractory of secondary combustion chamber
- Gas ducts
- Ash hoppers
- Internal surfaces of the evaporative cooler
- Internal surfaces of the fabric filter
- Internal surfaces of the precooler
- Internal surfaces of the scrubber
- Exhaust stack

A minimum of three wipe samples will be taken from various locations in each of the items specified above. A minimum of three background samples will also be taken. Background samples will be taken from exterior building surfaces in the vicinity of the incinerator. The location of background sampling locations shall will be approved by the Department prior to sampling.

Samples will be collected by applying a detergent solution to a piece of 11-centimeter (cm) diameter filter paper (e.g., Whatman 40 ashless, Whatman "50" smear tabs, or equivalent) or gauze pad. The moistened filter paper or gauze pad will be used to thoroughly swab a 100 cm² area. A template may be used to assist in the collection of a 100 cm² sample. When a template is used, it will be thoroughly cleaned between samples to prevent cross contamination of subsequent samples of the template or disposable templates will be used for each independent sampling location.

The <u>wipe</u> samples collected as part of the this decontamination verification-process will be analyzed using analytical methods as specified in the latest version of SW-846 at the time of elosure. The wipe samples will be analyzed for reactivity as well as for all of the hazardous constituents listed in Table <u>II.F-21</u>. The constituents presented in this table represent those hazardous constituents presented in Appendix VIII of 40 CFR Part 261 that are present or are expected to be present in the wastes burned in the incinerator. This list was determined through a combination of process knowledge, analytical data, and Material Safety Data Sheets.

The samples will be analyzed for reactivity by the appropriate test method specified in the Waste Analysis Plan. The samples will be analyzed for the presence of hazardous constituents by appropriate methods from SW-846, latest edition. The method with the lowest acceptable detection limit for each constituent of interest will be used. All applicable sample handling and preservation procedures of SW-846 Chapter Three will be observed. At least one blank, which will consist of a moistened filter paper or gauze pad, will be taken daily when sampling is ongoing.

The constituents presented in Table 2 are derived from the Waste Analysis Plan for the facility. The compounds listed in the Waste Analysis Plan were compared to the list of hazardous constituents presented in Appendix VIII of 40 CFR Part 261. In addition, the comparison process included an evaluation of the Material Safety Data Sheets for the proprietary compounds and other generic substances listed in the Waste Analysis Plan in order to determine the specific chemical constituents of those substances. Those constituents that comprise the substances listed in the Waste Analysis Plan and that are also listed in Appendix VIII of 40 CFR Part 261 are presented in Table 2.

Lack of contamination will be adequately demonstrated if the concentration of an constituent in a wipe sample is equivalent to or less than the concentration of the average background concentration. Those areas from which wipe samples exhibit a concentration of greater than the average background concentration will require further decontamination.

Further decontamination will consist of a high-pressure spray wash similar to that described for structures in Section 6.3.2the Grinder Building and associated equipment below, or will involve scrubbing with a detergent solution. After further decontamination, the subject areas will again be sampled with wipes samples. Samples will be, analyzed as before, and again compared to background. This process will be repeated until all sampled areas are adequately decontaminated. Wash water will be handled in the same manner as the decontamination wastes described in Section 6.4later in this section.

6.3.2—Decontamination of the Grinder Building House, Tanks, and Associated Equipment

All tanks and equipment which that may have contacted hazardous waste will be decontaminated prior to dismantling. These tanks and equipment include, but are not limited to, the following:

- Slurry Tanks tanks (Tanks 1A and 1B);
- Make-up tank;
- Catch tank;
- Feed hopper;
- Conveying <u>Mechanisms</u>mechanisms;
- Metal <u>Detector</u><u>detector</u>;
- Oversize <u>Detectordetector</u>;
- Pumps;

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- Grinder;
- Tank Agitatoragitators; and
- Slurry piping lines.

The general requirements of these procedures and related waste management practices are included in the following sections.

6.3.2.1 Equipment Decontamination Procedures

All potentially contaminated tanks and equipment will be cleaned and decontaminated prior to dismantling. Decontamination procedures will be performed in accordance with various RFAAP operating procedures and will include the steps noted below:

- 1. Equipment will be cleaned using properly grounded and inspected pressure washers or steam sprayers until contamination is visibly removed or adequately softened for subsequent scraping and cleaning.
- Remaining material will be removed by scraping, dipping parts in caustic solutions, etc.
- 3. Equipment bays and/or adjacent areas will be washed down; and.
- 4. Any catch basins or floor sumps will be cleaned out.

All wash water will be collected. If deemed compatible, these wash waters will be sent to the onsite WWTP for processing. If incompatible with the materials processed at the WWTP, the collected wash water will be characterized as required to facilitate offsite disposal. and aAll analyses will be performed fter the third washing, the water from each area will be analyzed for the hazardous constituents for reactivity as well as for all of the hazardous constituents listed in Table 2. The samples will be analyzed for reactivity by the appropriate test method specified in the Waste Analysis Plan. The samples will be analyzed for the presence of hazardous constituents by using the appropriate methods from SW-846, latest edition, or onsite procedures, if appropriate. The method with the lowest acceptable detection limit for each constituent of interest will be used.

The wash downs and analysis of the wash water will continue until the decontamination process is complete. Complete decontamination will be demonstrated by the achievement of the numerical limits of concentration in wash water for all hazardous constituents specified in Table II.F-21. Alternatively, complete decontamination may be demonstrated through the use of a statistical comparison of clean, pre-rinse, water with the post-rinse wash water.

If a statistical comparison is used, at least <u>five-three</u> samples of wash water from each area and <u>five-three</u> samples of clean water will be analyzed for all constituents in Table <u>II.F-21</u>. Complete decontamination will be demonstrated by no significant difference between clean water and wash water for all constituents. The statistical procedure used will be the Student's t-Test with one-trailed t values at the 0.05 level of significance.

After the tanks and associated equipment are removed from the facility the following process will be used to wash down and decontaminate all floors, sumps, and containment structures in the tank/grinder_Grinder_building_Buildingand_incinerators to remove residual contamination that may be present.

- 1. Any spilled liquids and solids will be removed for disposal.
- 2. All surfaces will be visually inspected for the presence of additional cracks or gaps discovered upon removal of decontaminated equipment. All such cracks or gaps

- will be sealed with an epoxy sealant in order to assure that wash solution will not migrate into or through the material.
- 3. All surfaces will be washed at least three times with a high pressure, low volume water spray. The specifications for the pressure cleaner will be a minimum achievable pressure of 2000 psi and a flowrate of less than 10 gpm. A minimum of 0.25 gallons per square foot of surface will be used for the pressure wash. Wash water will be collected after each rinse and will be collected separately from each area undergoing cleaning.

Again, all wash water will be collected and after the third washing, the water from each area will be evaluated to determine if it is compatible with the WWTP and treated therein if appropriate. If it is not possible to treat these waters onsite, they will be characterized as required to facilitate offsite disposal. be analyzed for the hazardous constituents for reactivity as well as for all of the hazardous constituents listed in Table 2 as described above.

The wash downs and analysis of the wash water will continue until decontamination is complete. As before, complete decontamination will be demonstrated by the achievement of the limits of concentration in wash water for all hazardous constituents specified in Table II.F-21. Alternatively, complete decontamination may be demonstrated through the use of a statistical comparison of clean, pre-rinse, water with the post-rinse wash water.

6.3.2.2 Management of Decontamination Wastes

Waste generated and/or accumulated as part of the equipment decontamination process will be collected, analyzed in accordance with the Waste Analysis Planas specified herein, and properly disposed-of. A description of each type of waste generated from the decontamination process and anticipated management practices are presented below.

Decontaminated tanks and equipment will either be sold, used at a different location at the facility, or shipped off siteoffsite as scrap. Residues removed from equipment during decontamination at the facility will be collected and tested for the hazardous characteristics of reactivity and toxicity analyzed as required to facilitate offsite disposal. If this material is found to be non-hazardous, it will be disposed of on siteoffsite or off siteoffsite as solid waste. If this material is found to be hazardous, it will be disposed of off siteoffsite in accordance with all state and federal laws.

After each washing, the wash water will be collected—and analyzed for reactivity and the other hazardous constituents listed in Table 2. If the wash water is compatible with the RFAAP wastewater treatment system it will be processed in said system. Again such wastewaters will be analyzed to assure that they are compatible with the wastewater treatment system processes. If the waste stream is suitable for treatment the facility VPDES permit will be modified to allow treatment. If on siteonsite treatment is not feasible, the water will be contained, characterized as required for offsite disposal, and transported off sitoffsite (as a hazardous or non-hazardous waste based upon the analyses) in accordance with state and federal regulations.

H.F.7d6.4 Reserved

H.F.7eII.F.5c 6.5 Evaluation of Surface and Subsurface Impact

6.5.1 Incinerator

As stated in Section 6.2 Site Preparation previously, all secondary containment and/or building floor/sump surfaces within the tank/grinder Grinder building Building, slurry loop line, and incinerators will be surveyed for visible signs of a material release or potential release routes (i.e., cracks, gaps, etc.). During site preparation, all such cracks or gaps will be sealed with an epoxy sealant in order to assure that decontamination wash solution will not migrate into or through the material.

Any cracks or gaps sealed with epoxy prior to decontamination shall be investigated at the time of demolition using coring techniques in order to determine whether they fully penetrate the concrete to the soil. Where such cracks are observed to be fully penetrating, a sampling and analysis program will be undertaken to determine the extent of impact. A comprehensive soil sampling and analysis plan will be prepared at the time of Incinerator closure if necessary and submitted to the VDEQ for approval. It is anticipated that the program would progress as follows:

- Collect and analyze soil samples from the cored locations. Survey these locations prior to demolition of the structure.
- 2. Following demolition and removal of the concrete, relocate the original sample locations using the survey information. These original locations will be the starting points for sampling grids to delineate the horizontal and vertical extent of any impacts.
- 3. —Analyze The soil samples will be analyzed for all of the hazardous constituents listed in Table II.F-2-1 using the analytical methods specified in the latest version of SW-846 at the time of closure. The constituents presented in Table 2 are derived from the Waste Analysis Plan for the facility. The compounds listed in the Waste Analysis Plan were compared to the list of hazardous constituents presented in Appendix VIII of 40 CFR Part 261. In addition, the comparison process included an evaluation of the Material Safety Data Sheets for the proprietary compounds and other generic substances listed in the Waste Analysis Plan in order to determine the specific chemical constituents of those substances. Those constituents that comprise the substances listed in the Waste Analysis Plan and that are also listed in Appendix VIII of 40 CFR Part 261 are presented in Table 2.

If there is no apparent release or potential for release observed, a simplified sampling program will be implemented to confirm that a release has not occurred.

6.5.2 Reserved

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H.F.7fII.F.5d 6.6 Management and Disposal of Miscellaneous Materials

The cleanup operations will likely result in the generation of other miscellaneous materials that may be contaminated during the cleanup process. Potentially contaminated items used in the clean up operations will likely be generated. Such materials may include but may not be limited to the following:

- Brushes, brooms, mops, buckets and related cleaning supplies;
- Shovels, absorbents, -and other tools; and
- Plastic sheeting.

All such waste materials will be properly characterized as required to facilitate offsite disposal(including the hazardous characteristics of reactivity and toxicity and other parameters as appropriate) in accordance with state and federal laws. Based upon these characterizations, the wastes will be disposed at a properly permitted facility in accordance with state and local laws. Liquid wastes may be discharged to the RFAAP wastewater treatment facility in accordance with the facility VPDES permit if such wastes are compatible with the treatment processes.

II.F.5e 6.7 Site Restoration

Once the waste materials and decontaminated equipment have been removed from the site, the area of the Incinerator will be restored. In the event that demolished foundation structures and/or other materials must be excavated for disposal off siteoffsite, site restoration will include backfill and compaction of any excavations, grading, and revegetation of the affected area(s). All backfill material must be analyzed before use at the site to ensure that it is "clean fill." The backfill material will be analyzed for the constituents specified in Table II.F-2-1 by appropriate methods from SW-846, latest edition. Additional constituents may be added to the analyses at the time of closure, pending VDEQ approval. In the event that it becomes necessary to conduct excavations at the time of closure, a detailed plan of the proposed excavation and site restoration activities will be submitted to the VDEO for approval.

H.F.7gH.F.5f

6.8 Certification of Closure

Within 60 days of completion of the closure procedures process, the Permittees will submit, by registered mail, a certification that the Incinerator has been closed in accordance with the specifications of this Closure Plan. The certification will be signed by an independent, Virginia registered professional engineer. The certification will also be signed by the Installation Commander and or an Alliant a principal corporate officer or duly authorized representative(s) of the contracted operator pursuant to 9 VAC 20-60-264 and 40 CFR Part 264.115.

H.F.8

H.F.911.F.6

7.0 POST-CLOSURE CARE AND GROUNDWATER MONITORING

As previously discussed it is the intent of RFAAP to "Clean Close" close the Incinerator such that there is unrestricted future landuse of the area. As such, no specific provisions for site monitoring, land restrictions, etc. have been included in this Closure Plan. Should site conditions change that would necessitate a change in the closure approach, such post closure care and monitoring may be warranted. If necessary, details of such activities will be developed in a future amendment to the Closure Plan. Section 9.0 of this Closure Plan addresses the permit modification process in general that would be necessary to amend the Closure Plan in accordance with 40 CFR 264.112(c).

H.F.10II.F.7 8.0 CLOSURE COST AND SCHEDULE

Federal facilities are exempt from the closure financial requirements pursuant to 9 VAC 20-60-264 and 40 CFR 264. 110140(c).

The Department will be notified at least 45 days before final (clean)—closure of the Incinerator is expected to begin. The date upon which closure is expected to begin will be the date upon which the final volume of hazardous waste is received at the Incinerator. Table II.F-3 2 shows the proposed schedule from notification of the department through submittal of the closure certification. As shown in the Tablestable, all closure activities are to be completed within 180 days. Certification of closure must be made within 60 days after the completion of closure activities, or at or before day 240 of closure. This time frame allows for the required sample analyses, additional decontamination and/or soil removal (as needed), and resampling. In the event that the proposed timeframe proves insufficient for the completion of closure activities, the permittees will submit a demonstration for the need for additional time.

If the facility's permit is terminated, or if the facility is otherwise ordered, by judicial decree or Order of the Board, to cease receiving hazardous waste, the Incinerator will be closed in accordance with the deadlines established in 9 VAC 20-60-264 and 40 CFR 264.113.

H.F.11 II.F.8

9.0 MODIFICATION TO CLOSURE PLAN

The permittees will submit a written request for a permit modification to authorize a change in the approved Closure Plan whenever:

- Le Changes in operating plans or facility design affect the Closure Plan;
- 2.• There is a change in the expected year of closure, if applicable; or
- 3.• In conducting partial or final closure activities, unexpected events require a modification of the approved Closure Plan.

The permittees will submit a written request for a permit modification including a copy of the amended Closure Plan for approval as follows:

- At least 60 days prior to the proposed change in facility design or operation; or
- No later than 60 days after an unexpected event has occurred which that has affected the Closure Plan.

If an unexpected event occurs during the partial or final closure period, the permittees will request a permit modification no later than 30 days after the unexpected event. The Department will approve, disapprove or modify this amended plan in accordance with the procedures in 40 CFR Parts 124 and 270. In accordance with 40 CFR 270.32, the approved Closure Plan will become a condition of this Permit.

Figures

Remove this page and insert the following:

Figure II.F-1 — Figure 1 from Closure Plan submitted with ATK ltr dtd 12 Jan. 2001 Location Map

 $Figure \ \ \ \ \ \, \underline{\text{II.F-3}} - _{Figure \ 3 \ from \ Closure \ Plan \ submitted \ with \ ATK} \\ \underline{\text{tr} \ dtd \ 12 \ Jan. \ 2001} \underline{\text{Area Map}}$

Figure II.F-4 — WPI Schematic

Figure II.F-5 — Figure 5 from Closure Plan submitted with ATK

Tables

TABLE II.F-1 WASTE GROUPS BURNED AT THE INCINERATORS Radford Army Ammunition Plant

Group No.	Description	Defining Characteristics
1	Miscellaneous Waste	Ignitable and reactive Liquids and Sawdust D001, D003
2	Miscellaneous Waste	Propellant Laboratory Waste D003, D008, D030, D004
3	Miscellaneous Waste:	Pit Cotton (Waste Nitocellulose) Solid Waste
4	Miscellaneous Waste	Dinitrotoluene and Trinitrotoluene Wastes from manufacturing that are not listed wastes D030
5	Liquid Waste	Water Containing Triethlyene Glycol Solid Waste
6	Liquid Waste	Water Containing Diethylene Glycol Solid Waste
7	Single Base Propellants	Propellant with Nitrocellulose and Lead D003, D008
8	Single Base Propellants	Propellant with Nitrocellulose D003
9	Single Base propellants	Propellant with Nitrocellulose and Dinitrotoluene D003, D030
10	Double Base Propellants	Propellant with Nitrocellulose and Nitrate Esters D003
11	Double Base Propellants	Propellant with Nitrocellulose, Nitrate Esters and Perchlorate salts D003
12	Double Base Propellants	Propellant with Nitrocellulose, Nitrate Esters and Lead, D003, D008
13	Double base propellants	Propellant with Nitrocellulose, Nitrate Esters and Solid Explosives D003
14	Triple base propellants	Propellant with Nitrocellulose, Nitrate Esters and Nitroguanidine D003
15	Load, Assemble, & Pack Waste	Energetic materials from manufacturing cartridges D003
16	Single Base Propellants	Propellant with Nitrocellulose, Dinitrotoluene and Lead D003, D008
17	Specialty Products Waste	Propellant with Nitrocellulose, Nitrate Esters, Nitroguanidine, Solid Explosives, or Appendix 3.6 Constituents D003
18	Specialty Products Waste	Propellant with Nitrocellulose, Nitrate Esters, Nitroguanidine, Solid Explosives, and Appendix 3.6 Constituents, Chlorides or Perchlorates D003
19	Specialty Products Waste	Propellant with Nitrocellulose, Nitrate Esters, Nitroguanidine, Solid Explosives, and Appendix 3.6 Constituents or Metals D003, D004-D010

TABLE 2 HAZARDOUS CONSTITUENTS CONTAINED IN WASTES TREATED AT THE INCINERATOR

Radford Army Ammunition Plant

Parameter	CAS#	Analytical Method (SW-846)	Estimated Quantitation Limits(µg/L)
Antimony sulfide	(Antimony)	6020	1
(Antimony Compounds N.O.S.)	7440-36-0		
H.F.12 Arsenic	7440-38-2	6020	5
Barium N.O.S.	(Barium)	6020	10
	7440-39-3		
Benzene (possibly in alkylbenzene sulfonic acid)	71-43-2	8260B	5
Chlorobenzene	108-90-7	8260B	5
Carbon tetrachloride	56-23-5	8260B	5
(1.5 % of Chlorowax 70)			
H.F.13 Chromium nitrate	(Chromium)	6020	5
(Chromium compounds N.O.S.)	7440-47-3		
H.F.14Dibutyl phthalate	84-74-2	8270C	10
(Di-n-butyl phthalate)			
Diethyl phthalate	117-81-7	8270C	10
2,4-Dinitrotoluene	121-14-2	8091	0.08
Diphenylamine	122-39-4	8270C	10
Formaldehyde (found in phenolic resin)	50-00-0	8315A	25
Hexachloroethane	67-72-1	8270C	50
Lead N.O.S.	(Lead)	6020	1
	7439-92-1		
H.F.15 Mercury	7439-97-6	7470A	2
Mercuric chloride (CAS# 7487-94-7)	(Mercury)	7470A	2
(Mercuric Compounds N.O.S)	7439-97-6		
Methyl chloride	74-87-3	8260B	5

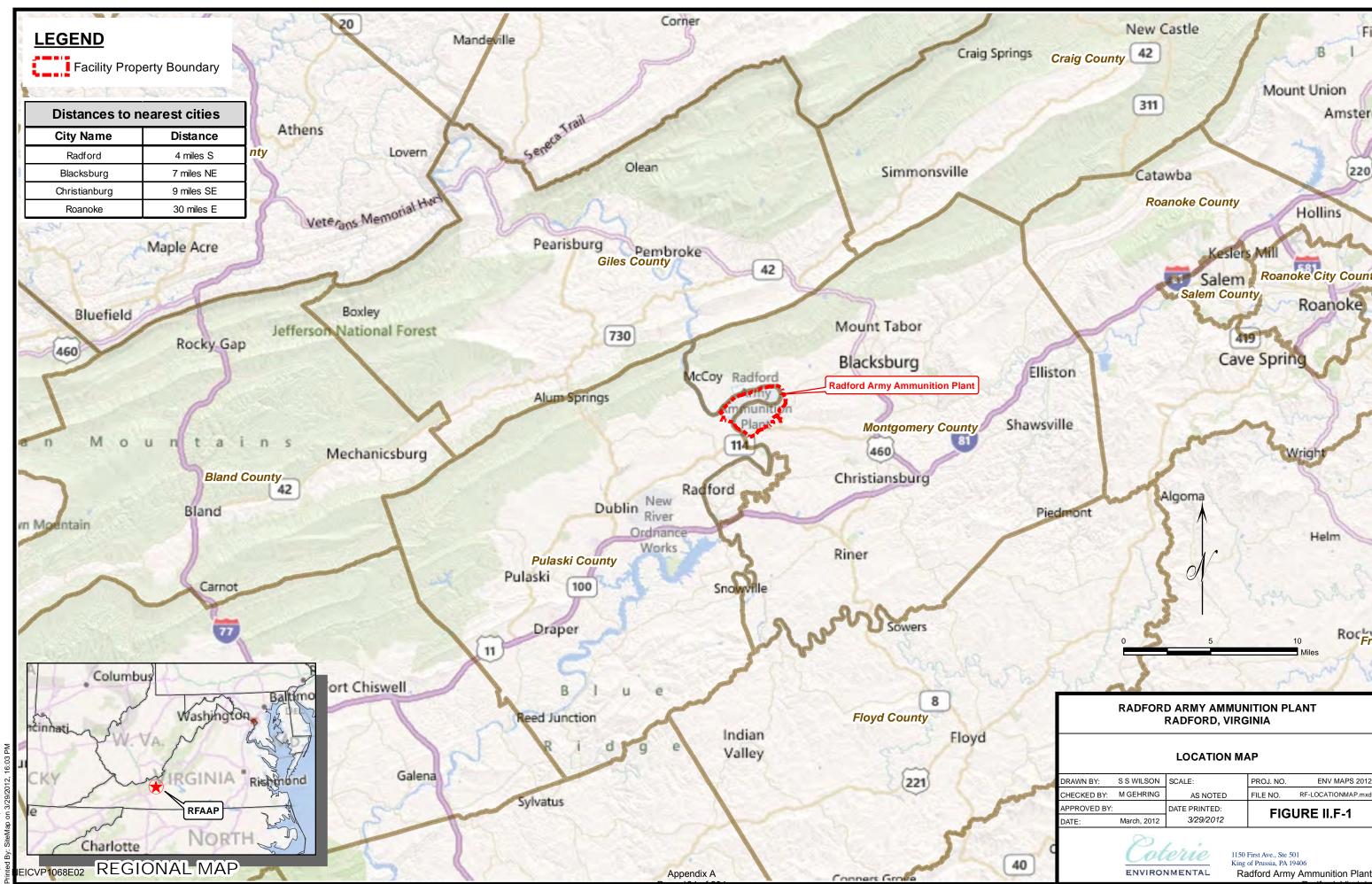
Methylene chloride	75-09-2	8260B	5
Nitroglygerine	55-63-0	8332	10 mg/L
Total Phenols (found in phenolic resin)	108-95-2	9066	5
Silver	7440-22-4	6020	2
Toluene	108-88-3	8260B	5

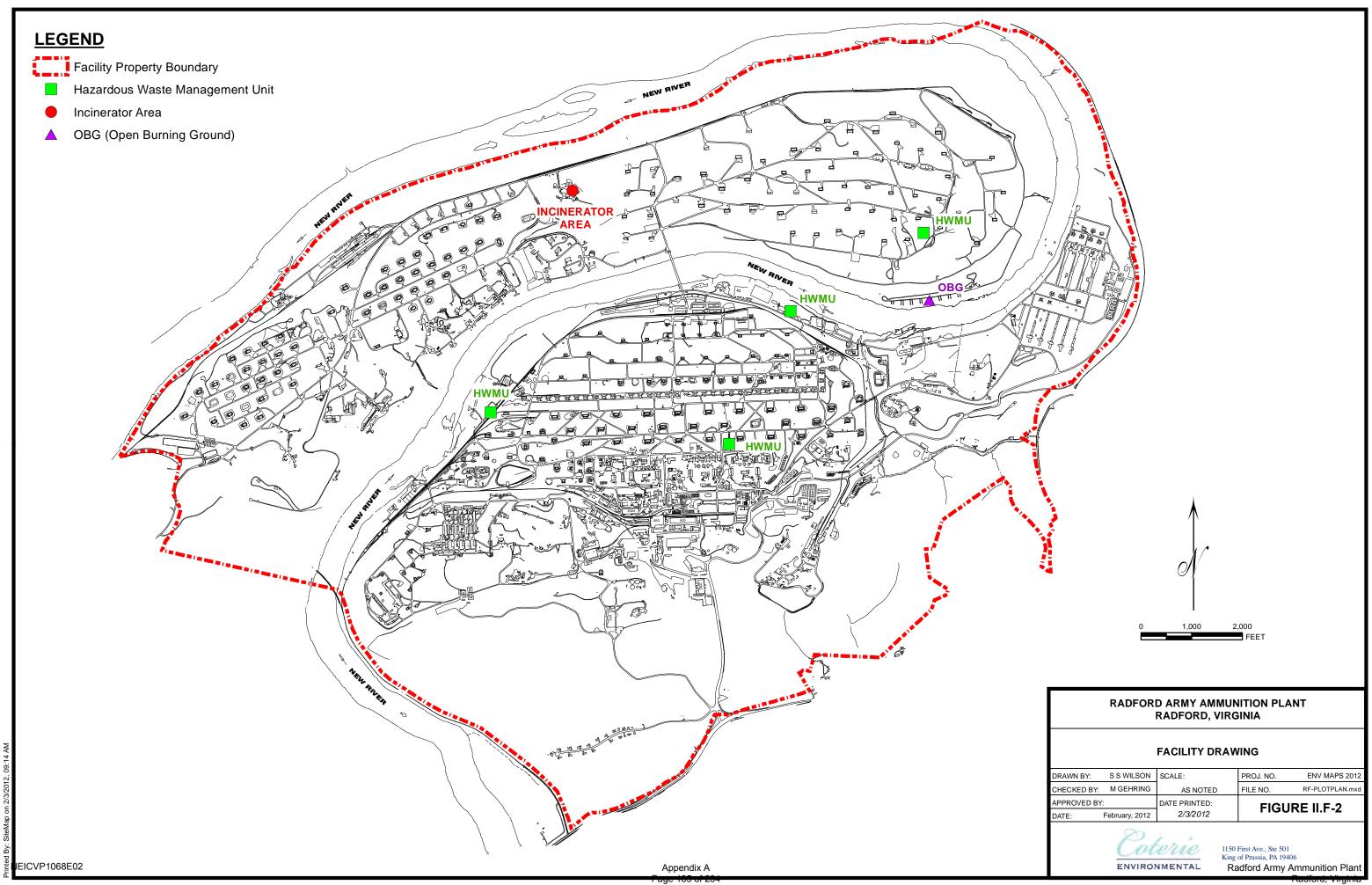
N.O.S: Not Otherwise Specified.__-sSignifies those members of the general class not specifically listed by name in Appendix VIII of 40 CFR Part 261.

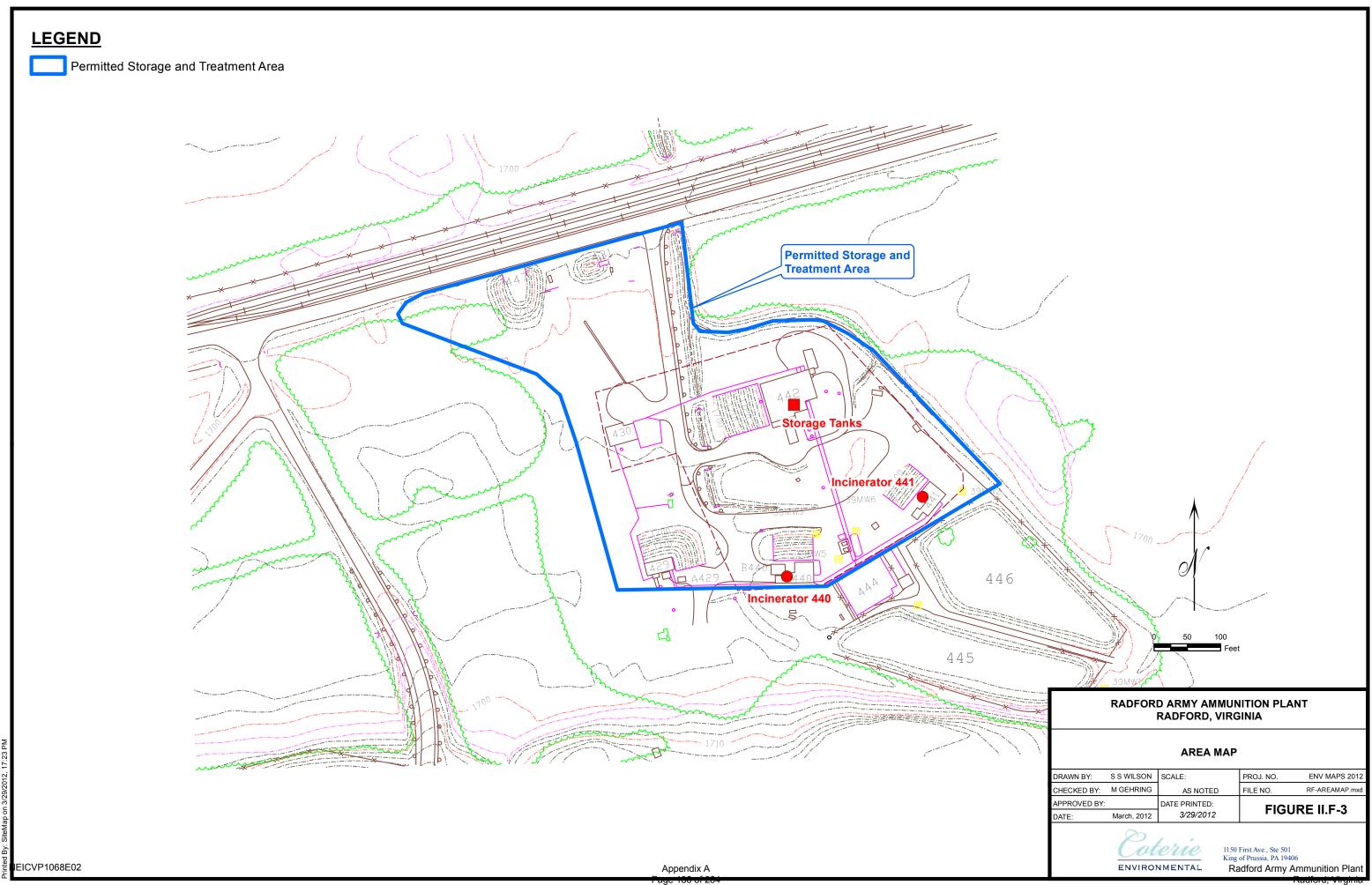
TABLE II.F-32 PROPOSED CLOSURE SCHEDULE Incinerator Radford Army Ammunition Plant

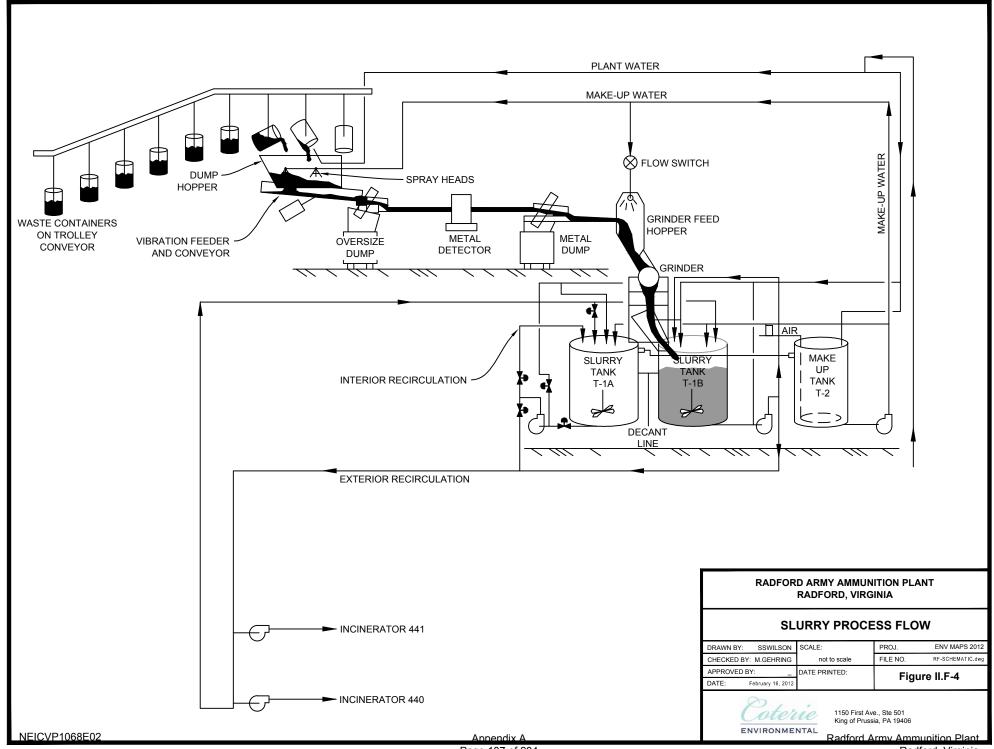
Days From Beginning of Closure	Event	
- 45	Notification of Department	
0	Receive last volume of waste	
0-2	Treat/Incinerate final volume of waste	
2-5	Remove residuals from tanks	
5-7	Incinerator burnout	
7-10	Remove incinerator ash, scrubber water, and scrubber sludge	
10-15	Select tentative locations for background sampling, seek approval from Department	
15-20	Inspect for cracks in secondary containment, building floors, and sumps	
20-30	Clean and decontaminate tanks	
20-30	Visually inspect incinerator, remove solid residue	
30-35	Remove fabric filter and scrubber packing material	
30-50	Dismantle, decontaminate, remove tanks and equipment	
50-55	Visually inspect, seal cracks and gaps in structures	
55-70	Decontaminate incinerators (if necessary)	
55-70	Decontaminate structures	
55-75	Sampling - structures, wash water, Incinerator	
55-100	Sample analysis	
55-75	Soil sampling	
100-125	Soil removal (if necessary)	
90-125	Repeat sampling and analysis (if necessary)	
110-140	Additional soil removal (if necessary)	
90-150	Repeat sampling and analysis (if necessary)	
180	Completion of closure activities	
240	Submit signed closure certification to the Department	

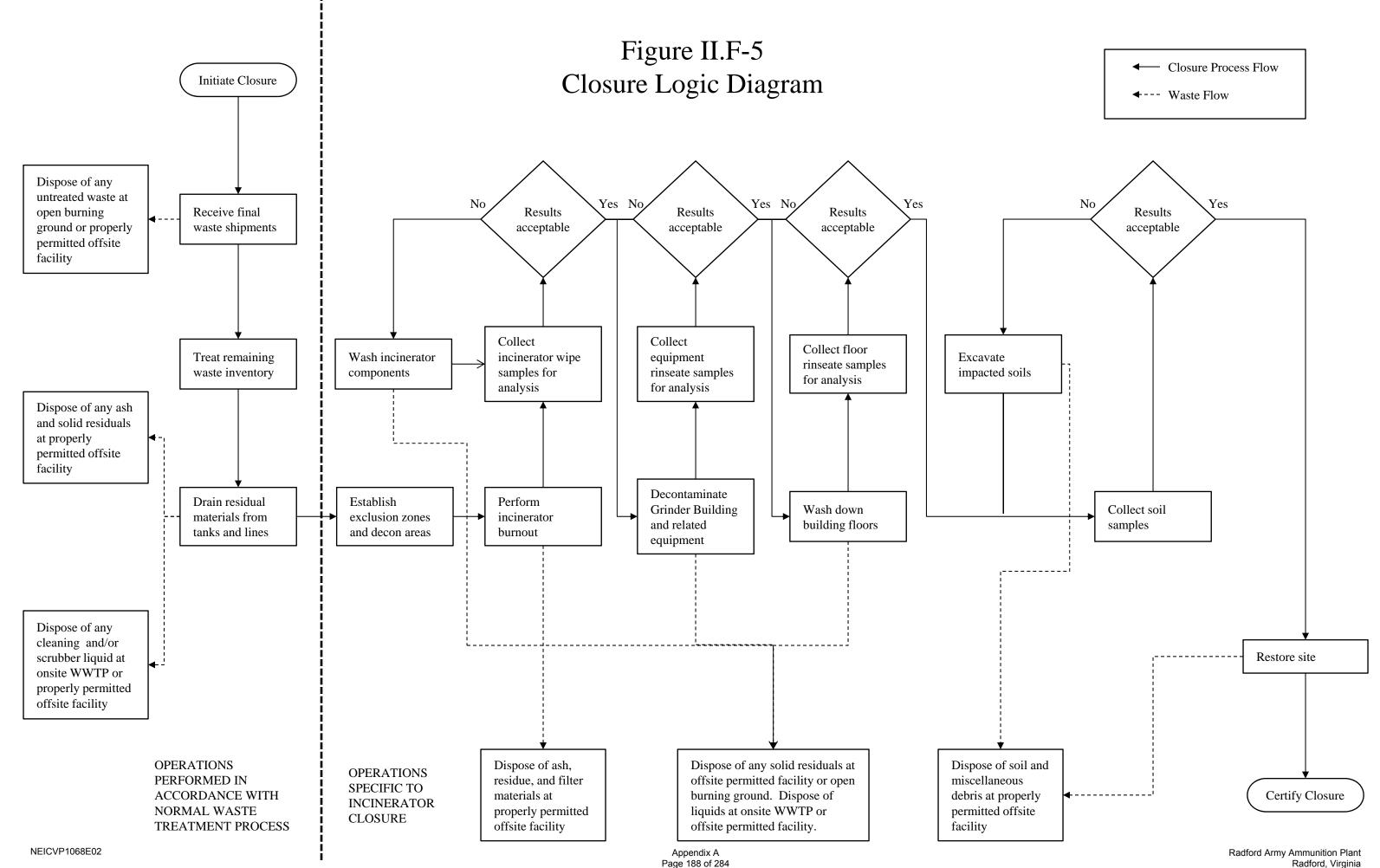
Times, in days, are from the date upon which closure begins.











ATTACHMENT II.G SECURITY PROVISIONS

ATTACHMENT II.G - SECURITY PROVISIONS AND MAINTENANCE

II.G.1. Introduction

Plant security at Radford Army Ammunition Plant is provided by the Alliant Techsystems, Inc. in accordance with U.S. Army Operations Support Command standards. Plant security is assured by security procedures and security equipment, a 24-hour security system, a gated fence system with controlled entry, and posted warning signs.

Protection of plant personnel, property, resources and operations at the Radford Army Ammunition Plant (RFAAP), a Government-owned, contractor-operated (GOCO) manufacturing facility, is provided under contract by Alliant Techsystems, Inc. (ATK) by the operating contractor or subcontractor in accordance with Department of the Defense (DOD), Department of the Army (DA), United States Army Joint Munitions Command (USAJMC) and other regulatory guidance and standards. Generally, Aa subcontractor security guard force, Wackenhut Services, Inc. (WSI), is used to perform and enforce prescribed physical security measures.

II.G.2. Security Procedures and Equipment

Security Areas and Control Measures are documented in Chapter 2 of the "Plant Protection Plan" manual. The Captain of WSI Security Guard Force and the Plant Protection Manager have a copies of this manual in their offices. The Security Guard Standing Operating Procedures (SOPs) are also listed in this manual. There are 45 SOPs with information on subjects ranging from employee and visitor identification procedures, the movement of property through the totally encircling fence (security gates), visitor control, vehicle control, and general security police orders. Physical security at Radford Army Ammunition Plant includes perimeter patrols, a badge ID system, pre-employment investigations, building and lock inspections, lock rotation, and key registration. At storage sites, tank inlets and disbursing valves are secured with security locks. The RFAAP is a protected military installation, under 24-hour surveillance from a trained security force. RFAAP is considered a "closed post" in that access is controlled at all times by perimeter barriers with limited, manned entry control points. The secured areas of the installation have been designated as Limited and Posted Areas. More than 70 percent of the RFAAP's acreage is enclosed in three limited areas. All propellant manufacturing, storage, testing and support activities, except for administration, are included in limited areas. Those areas outside of the limited area but within the posted area are restricted to non-energetic activities.

Physical security measures at RFAAP include security guard patrols, manned security posts, perimeter fencing, a badge identification system, lock and key accountability and rotation, vehicle registration, pre-employment background

investigations, security lighting, warning signs and physical barriers. At storage sites, tank inlets and disbursing valves are secured with security padlocks.

In addition to the protection offered by the physical barriers, additional security is provided by Security Guard patrols, manned security posts, a badge identification system, lock and key accountability and rotation, vehicle registration, pre-employment background investigations, security lighting, warning signs, and other physical barriersSecurity areas on the installation have been designated as <u>Limited and Posted Areas</u>. These areas and corresponding control measures are documented in Chapter 2 of the Plant Protection Plan (PPP). RFAAP is considered a "closed post" in that access is controlled at all times by perimeter barriers with limited, manned entry control points. The PPP also contains Security Guard orders, Security Guard standing operating procedures (SOPs) and numerous plans for execution in specific situations such as bomb threat, installation closure, work stoppage and civil disturbance. SOPs cover a range of subjects such as property movement, personnel and visitor identification and control, vehicle and personnel searches, perimeter inspections, key and lock control, and use of force. Security Guard Orders cover specific duties and requirements at assigned Security Guard posts, gates and stations. Physical security measures at RFAAP include Security Guard patrols, manned security posts, perimeter fencing, badge identification system, lock and key accountability and rotation, vehicle registration, pre-employment background investigations, security lighting, warning signs and physical barriers. At storage sites, tank inlets and disbursing valves are secured with security padlocks.

II.G.3. 24-Hour Security System

Radford Army Ammunition Plant's 24-hour security force is divided into three shifts. The day shift security force consists manned posts and roving patrols; the evening shift has manned posts and roving patrols; and the midnight shift has manned posts and roving patrols. The 24-hour roving patrol checks on all explosives buildings and road visible fencing every eight hour shift.

The Security Guard Fforce provides 24 hour, 7 day a week-x 7 security coverage of the RFAAP and is divided into three (3) shifts. Each shift consists of manned posts, roving patrols, and management personnel. The roving patrols perform random checks each shift of manufacturing areas, locked explosive storage buildings, and road-visible perimeter fencing.

II.G.4. Barrier and Means to Control Entry

Entry to the Radford Army Ammunition Plant is limited to one point. This access is mannedrestricted 24 hours/per day, 7 days a week_ The outer perimeter of the installation is enclosed with a FE-1 five strand barbed wire fence. Security personnel at installation entrances record the name and other pertinent data of each person not possessing a Radford Army Ammunition Plant personnel identification badge. If the person has valid official business at the plant or is accompanying a person who does have such business, posted area visitor badges are issued and the time and date of entry are recorded.

Seventy two percent of Radford Army Ammunition Plant's acreage is enclosed in three limited areas. All propellant manufacturing, storage, testing and support activities except administration are included in limited areas. There is a six-foot high cyclone fence (FE-6 or FE-7) with two feet of barbed wire on top that surrounds limited areas.

The six active entrances into the limited area are controlled by armed Security Guards. Entering persons must first be authorized by the Plant Manager, Commander, or their designated representatives and then processed by the security personnel.

Entry to the Radford Army Ammunition Plant is restricted to authorized personnel. Personnel must be in possession of a valid personnel identification badge or visitor badge. If the person has valid official business at the plant or is accompanying a person who does have such business, posted area visitor badges are issued and the time and date of entry is recorded.

The incinerators are located within the limited area of the plant. Access to this area is strictly controlled through manned security gates that perform an identification check of each person entering the area. Only those persons with valid contractor, government, or visitor identification badges are permitted. At the incinerator area itself, Each person entering the limited areas is required to have an appropriately coded personnel identification badge as checked or issued by the Security Guard. Eeach person going to the incinerator complex must notify the control room and obtain permission. Video surveillance of the permitted storage and treatment area is monitored in the control room by operations personnel.

II.G.5. Warning Signs

At all plant entrances and in areas designated as posted, the following "Condition to Entry" <u>signs</u> have been erected:

CONDITION TO ENTRY
TO

RADFORD ARMY AMMUNITION PLANT

All persons, their possessions and vehicles are liable to search upon entering, during their stay, or upon their leaving this installation. Entry of persons and/or vehicles constitutes consent to search by proper authorities at any time. The following articles are prohibited within this installation:

Firearms, ammunition and weapons
Explosives and explosive devices
Cameras
Intoxicants and drugs
Gambling Services
Chemical Emission devices
Stolen property and obscene literature

By order of the Commanding Officer.

CONDITION OF ENTRY TO RADFORD ARMY AMMUNITION PLANT

All persons, their possessions and vehicles are liable to search upon entering, during their stay, or upon their leaving this installation. Entry of persons and/or vehicles constitutes consent to search by proper authorities at any time. The following articles are prohibited on this installation:

- Alcohol
- Firearms, Ammunition and Weapons
- Explosives and Explosives Devices
- Cameras (Unless Authorized in Writing)
- Camera Cell Phones (Unless Registered)
- Intoxicants and Drugs
- Gambling Devices
- Chemical Emission Devices
- Stolen Property and Obscene Literature

By Order of the Commanding Officer

Signs reading "US Government Property - No Trespassing" are located approximately every 500 feet on the installation boundary, except where designated limited area fences are not located on or <u>are</u> reasonably adjacent to the property boundary.

Every 500 feet on limited area fences and at other highly visible locations, such as corners and gates, the following signs are located on the fence facing outward:

US ARMY

US ARMY RESTRICTED AREA WARNING

This area has been declared a Restricted Area by authority of the Commanding Officer, in accordance with provisions of the Directive issued by the Secretary of Defense on 20 August 1954, pursuant to the provisions of Section 21, Internal Security Act of 1950. Unauthorized entry is prohibited. All persons and vehicles entering hereon are liable to search. Photographing, making notes, drawings, maps, or graphic representations of this area or test activities, are prohibited unless specifically authorized by the Commanding Officer. Any such material found in the possession of unauthorized persons will be confiscated.

RESTRICTED AREA

WARNING

This area has been declared a Restricted Area by authority of the Commanding Officer, in accordance with provisions of the Directive issued by the Secretary of Defense on 20 August 1954, pursuant to the provisions of Section 21, Internal Security Act of 1950. Unauthorized entry is prohibited. All persons and vehicles entering hereon are liable to search. Photographing, making notes, drawings, maps, or graphic representations of this area or test activities, are prohibited unless specifically authorized by the Commanding Officer. Any such material found in the possession of unauthorized persons will be confiscated.

In addition, information signs warning against smoking and the introduction of matches and other flame-producing devices are displayed at all normally used gates.

All warning signs posted around the regulated units can be read from a distance of at least 25 feet.

II.G.6. Entry to Regulated Units

Entry to the regulated units is controlled via personnel monitoring, video surveillance, and displayed signage. All Ppersonnel entering the area must check in with the control room prior to entry to the incinerator. A visitors log is maintained of those personnel that are not AAPC contractor or ATK normally assigned to the areaemployees. This access is further restricted when waste is being burned or grinding is being conducted. No one is allowed within 50 feet of an incinerator when it is treating waste. No one is allowed in the area during grinding operations.

Signs and flashing red lights provide visible indication of the hazards of the area and serve to limit entry. Operation of each area (the grinder and each incinerator) is indicated with a A-flashing red light is activated when the grinder is in operation. Flashing red lights are also located on each incinerator building to indicate they are in operation. The area is posted with signs stating "NO ENTRANCE"_-WHILE THE RED LIGHT IS FLASHING_". Finally, there is a sign posted at the roadway entrance to the grinder and incinerator facilities with the approved legend "DANGER UNAUTHORIZED PERSONNEL KEEP OUT". Signs with this legend are also placed at the Grinder Building and at each of the two incinerators. All warning signs posted around the regulated units can be read from a distance of at least 25 feet.

The entrances to the grinder building are locked when incinerator area personnel are not performing operations. This practice prevents physical access to the incinerator.

Attachment II.G II.G-6

NEICVP1068E02

ATTACHMENT II.H

FLOOD PROOFING/PROTECTION PLANS AND SPECIFICATIONS AND 100-YEAR FLOOD RESPONSE PROCEDURES

<u>ATTACHMENT II.H – FLOOD PROOFING/PROTECTION PLANS AND</u> SPECIFICATIONS AND 100-YEAR FLOOD RESPONSE PROCEDURES

II.H.1. <u>Floodplain Standard</u>

Figure II.H-1 provides a depiction of the 100-year flood plain elevations near the permitted storage and treatment area. This data was obtained from a combination of sources. The National Flood Insurance Program, Flood Insurance Rate Map dated November 7, 2011, was used to obtain information on 100-year flood elevations in the area near the incinerator. This data was then combined with more detailed topographic contour data from a 1992 contour analysis of the RFAAP to provide a more accurate representation of flood tendencies within the permitted storage and treatment area. The foundations of Building 442 (tanks) and Buildings 440 and 441 (incinerators) are located within the 100-year floodplain. The source of data for this determination is the National Flood Insurance Program, Flood Insurance Rate Map, Community Panel Number 510099 0025 A, October 17, 1978. However, the operating floors of the buildings are above the 100-year flood plain elevation. The approximate location of the 100-year floodplain is presented in Figure II.H-1.

II.H.2. <u>Demonstration of Compliance</u>

As shown in the figure, the foundations of Building 442, which houses the slurry tanks, and Buildings 440 and 441, which represent the incinerators, are located within the 100-year floodplain. However, the operating floors of the buildings are above the 100-year flood plain elevation. Therefore, while the building foundations may be wetted from a 100-year flood, the portions of those buildings holding hazardous waste (the slurry tanks and the incineration chambers) are above the 100-year flood elevation. Therefore, the waste itself is not at risk from a flood. The 100-year flood elevation is 1700 ft. MSL at the incinerators. The lowest entry point is at Building 442 at 1703.83 ft. MSL. The incinerator kilns are above 1700 ft. MSL. Given the proximity of the structures to the 100-year flood elevation, however, ATK has instituted Tthe flood proofing and flood protection plans are in place because of the proximity to the 100 year flood elevation. described herein.

II.H.3. Flood Proofing and Flood Protection Measures

Located between the New River and incinerators and the permitted waste storage and treatment facility are some of RFAAP's railroad lines. These railroad lines are elevated and would serve as a barrier to prevent flooding of the area except that culverts (transverse drains) have been built through the railroad embankment. The culverts have been constructed to drain water from the area surrounding the facilities. During a 100-year flood however, the flood waters will flow in the opposite direction through the culverts and toward the facilities. If facility

personnel were to block the entrances to these culverts in the event of an anticipated 100-year flood occurrence, water would not be expected in the permitted treatment and storage area. This preventative action is the most desirable flood protection measure. In the case that the culverts are not adequately blocked during a 100-year flood_and flooding is imminent, potential flooding of the area is addressed in the following section.the procedures described below will be followed.

II.H.4. Plant-Wide Flood Plan

The Flood Plan for RFAAP is located in Alliant's Management Manual No. 2-1.9, Issue 7, titled "Flood Watch" (or current update). This procedure was written in the event that flooding conditions at RFAAP are imminent. The procedure discusses safety precautions, flood watch procedures, reporting, flood levels and buildings affected by high waters.

Utilities personnel are responsible for monitoring the river elevations at the River Bridge. When flooding appears imminent, readings are taken at the River Bridge at a minimum of once per hour. At an elevation of 1,695 feet at the River Bridge (five feet below flood stage at the bridge), or if conditions warrant, a Utilities Division representative shall collect information from local sources to help eall the American Electric Power (AEP) Company's Roanoke office, obtain evaluate the flooding potential and log the following information: This information will be updated

- Time call was made
- Person talked to
- Claytor Lake gate openings
- Flow through gates CFS
- Total flow turbines and gates CFS
- Radford gage reading
- Galax gage reading
- Weather prediction

Knowing the gate opening, the corresponding elevation at the New River Bridge can be read from a table in the procedure. These calls will be placed on an hourly basis provided the river level is rising and/or is in flood stage.

The time the flood waters will take to reach the facility varies depending on the amount of discharge at Claytor Dam. It is estimated that a flood crest starting at Claytor Dam will reach the facility in approximately 2 to 3 hours.

Utilities personnel shall request the Security Police Dispatcher to notify key personnel in the instance of the following events:

- if The Claytor Lake dam gates are opened 20 feet or more;
- tThe water level reaches an elevation of 1,697 feet at the River Bridge, or
- #Flooding conditions are predicted.

The Environmental Department shall coordinate any corrective action and cleanup activities that are necessary. Engineering is responsible for estimating damages to physical facilities and equipment.

II.H.5. Additional Flood Plan Procedures for the Permitted Storage and Treatment Area

In the event that the New River height at the River Bridge reaches 1,695 ft MSL (five feet below flood stage at the bridge), ATK will institute the flood protection plan for the permitted storage and treatment areas. When this plan is activated, aAny containerized waste, which that has not been ground and slurried in the treatment process, will be returned to the facility hazardous waste accumulation area, which is above the 100-year flood elevation. If possible, all-Any waste already slurried and in the waste present in the treatment and storage slurry tanks will be incinerated <u>if possible</u> before the river reaches the 100-year flood level. (Note the burnout times listed in Table II.H-1). This measure will help This will be done to alleviate any inspection requirements during the flood period. However, if the tanks cannot be fully emptied due to unit outages or other problems, the slurry will be left to remain in them, as the lowest entry point to the Grinder Building is above the 100-year flood elevation. Should the incinerator be inoperable during the waste removal operations, the waste in the slurry tanks will be left in the tanks. As indicated in Section II.H.1 above, the floor to Building 442 (Grinder Building) is above the 100 year flood level, therefore, it will be safe to leave the slurry in the tanks.

Table II.H-1 lists the locations, activities and timing involved in removing the waste from the area in the event of flooding. Dedicated and trained personnel are available to carry out the necessary activities. In general, aAmple time exists between flood notification and the arrival of flood waters at the facility to implement the flood plan activities. As shown in Table II.H-1, the time required to move the wastes from Building 442 is an hour for the solid wastes and up to three hours to treat the aqueous slurry one tank of aqueous slurry, provided that both incinerators are in operation. These activities can be performed simultaneously, as

The activities involved in removing both types of waste from the building can be accomplished simultaneously. Tthere are an adequate number of trained waste incinerator area personnel to independently accomplish the tasks.

Incinerator ash will also be removed <u>by area personnel</u> in the event the water level <u>in of</u> the New River at the facility is anticipated to reach the 100-year flood level. Ash containers will be loaded into a powder van and transferred to a hazardous waste accumulation area <u>that is above the anticipated flood height</u>. There are no incompatibility restrictions on the incinerator ash and the untreated propellant at the accumulation area. The procedures and equipment used to move the ash are similar to those for moving the waste propellant containers. The waste propellant incinerator area personnel are responsible for moving the incinerator ash.

II.H.6. Waiver for Land Storage and Disposal Facilities

The incinerators are not land storage or disposal facilities. Therefore, a waiver from the floodplain standard is not applicable to this permit application.

II.H.7. Plan for Future Compliance with Floodplain Standard

The incinerators' foundations currently lie within the 100-year floodplain. Plans have not been initiated for their removal <u>or alteration</u>. RFAAP has a SOP for advanced warning and notification in the event of flooding of the New River <u>that provides adequate protection for the hazardous wastes managed in these facilities</u>.

TABLE II.H-1

REMOVING WASTE IN THE EVENT OF FLOODING

Type of Waste Material	Location to which waste will be moved	Procedures and equipment to be used	Personnel to be Used	Time required for waste movement
Solid Waste waste Propellant propellant in containers	Facility Hazardous Waste Accumulation Area	Move wastes to the Explosive Hold House per standard procedures using powder vans UOP 4-3-2H: Pickup and Transporting Waste Explosive material to the Explosive Hold House	Trained storage and treatment and storage area personnel	Loading: 25 minutes (max, 36 cans) Transport: 10 minutes (3300 feet) Unloading: 25 minutes Total: 60 minutes
Slurried waste propellant in tank(s)	Incinerator or facility Facility Hazardous Waste Accumulation Area	SOP RD-0000-K- 002Incinerate wastes following standard operating procedures	Trained storage and treatment and storage area personnel	Incineration Two incinerators: 2½ - 3 hours_per slurry tank One incinerator: 5 - 6 hrs per slurry tank Removal Approximately 3 hrs
Incinerator Ashash	Facility Hazardous Waste Accumulation Area	SOP RD-0000-K- 002Transport waste to accumulation area using powder vans following standard procedures	Trained storage and treatment and storage area personnel	Approximately 2 hrs

Remove this page and insert the following:

Figure II.H-1 — "Incinerator Site Map and 100 Year Flood Plain Designation" from ATK ltr dtd 17 Jan. 2001Flood Map

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MODULE III – OPERATING CONDITIONS

III.A. <u>GENERAL</u>

This Module is organized with separate Parts to identify the operational and performance requirements that are specific to each type of unit (i.e, tanks, incinerators, etc.) included in the permitted storage and treatment area. The module is organized as follows:

- Section III.B provides requirements for equipment subject to the air emission control requirements of 40 CFR 264 Subpart BB;
- Section III.C provides requirements for air emission controls for the permitted tanks pursuant to 40 CFR 264 Subpart CC;
- Part III.1 addresses specific requirements for storage and treatment in the permitted tank systems; and
- Part III.2 addresses specific requirements for the hazardous waste incinerators.

III.B. ORGANIC AIR EMISSION REQUIREMENTS FOR EQUIPMENT LEAKS

III.B.1. Highlights

The equipment subject to the 40 CFR 264, Subpart BB is that equipment that contains or contacts hazardous waste organic concentration of at least 10% by weight. The subject equipment is identified, listed in Attachment III.A, Table HII.A-1. Information is provided on are listed by the equipment LD-identification number, the associated hazardous waste management unit, the type of equipment, and the approximate location. A facility plot map (see Attachment III.A, Figure 1) shows the general area within which the subject equipment is located. The subject equipment comes into contact with the waste slurry, a light liquid, before it is fed to the rotary kiln incinerators. This equipment includes various pumps, valves, and miscellaneous connections, each of which is marked in a manner such that they can be readily distinguished from other equipment. There are no compressors, pressure relief devices, sampling connecting systems, or open-ended valves or lines that contact or contain such waste.

The maximum possible organic <u>concerntration concentration</u> of the waste that this equipment contacts or contains was determined from the maximum organic <u>concerntration concentration</u> (100%) of any <u>propellant energetic material</u> generated at the RFAAP-<u>Facility</u>. Before being burned in the incinerators, all <u>propellants energetic material is are</u> ground into a slurry that is, at a minimum, 3.5 parts water for every part <u>propellantenergetic</u> (this is a safety limitation). Based

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on this specification, the maximum possible organic concentration (attributable to solid propellantenergetic material) that the equipment listed in Attachment III.A, Table III.A-1 could contain or contact would be 22%. This is the basis used for the organic concentration of <30% listed in Attachment III.A, Table-HII.A-1.

III.B.2. Permitted and Prohibited Waste Identification

- a. The Permittees may manage the wastes listed in Appendix II.B-1, Table I (see Module II, Attachment II.B) with the equipment listed in Attachment III.A, Table I subject to the terms of this Permit.
- The Permittees are prohibited from managing hazardous waste that is not identified in Permit Condition III.B.2.a. with the equipment listed in Attachment III.A, Table III.A-1.

III.B.3. Emission Control Technology

The Permittees shall operate and maintain equipment and associated emission control technology according to detailed plans and reports contained in Attachment III.A, and Parts III.1 and III.2. of this Permit.

III.B.4. Monitoring and Inspection Schedules and Procedures

a. Valves

Except for the valves designated as specified in III.B.4b, The following valves identified in Attachment III.A shall be monitored monthly using Reference Method 21; and must maintain a reading of less than 10,000 ppm as specified in Attachment III.A. Any valve for which a leak is not detected for two successive months may be monitored quarterly until a leak is detected. If a leak is detected, the Permittees must resume monitoring the valve monthly until a leak is not detected for two successive months. All leaks must be repaired in compliance no later than 15 calendar days after leak detection, and a first attempt at repair must be made no later than 5 calendar days after leak detection.

Valve I.D. No.	HW Mgmt. Unit	Location
V-A-440	Incinerator 440	440 Pump House
V-B-440	Incinerator 440	440 Pump House
V A 441	Incinerator 441	441 Pump House
V B 441	Incinerator 441	441 Pump House
V-14	Tank T-1A	Grinder Bldg, 442
V 15	Tank T-1B	Grinder Bldg, 442
V 17A	Tank T-1A	Grinder Bldg, 442

Comment [RFAAP1]: The tables in this section were eliminated as they duplicate the information in Attachment III.A, creating multiple places that need to be modified in the event of a change. We prefer to list the equipment only once and simply refer to it as appropriate from other locations.

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Valve I.D. No.	HW Mgmt. Unit	Location
V-17B	Tank T-1B	Grinder Bldg, 442
V 18A	Tank T-1A	Grinder Bldg, 442
V-18B	Tank T-1B	Grinder Bldg, 442
V-27A	Tank T-1 A	Grinder Bldg, 442
V 27B	Tank T 1B	Grinder Bldg, 442

b. The following-valves are designated in Attachment III.A as difficult or unsafe to monitor and shall be monitored annually as specified in Attachment III.A.

This designation is applied to these valves because they are either at an elevated height of greater than 2 meters or are located in an area that requires personnel monitoring and presents safety risks when personnel are present for extended periods and waste is present in the slurry tanks. Furthermore, no leaks were identified in this equipment in the permit time frame from 2002 through 2012.

Comment [RFAAP2]: Moved grinder building valves to difficult to monitor designation due to safety concerns with extended periods in the grinder building basement.

Valve I.D. No.	HW Mgmt. Unit	Location
V-440S	Incinerator 440	Slurry Loop
V-440R	Incinerator 440	Slurry Loop
V 441S	Incinerator 441	Slurry Loop
V 441R	Incinerator 441	Slurry Loop

c. Pumps

The <u>following</u> pumps <u>identified in Attachment III.A</u> shall be visually inspected weekly and monitored monthly using Reference Method 21. <u>Each pump</u>, and must maintain a reading less than 10,000 ppm and must comply with the leak repair program as specified in Attachment III.A.

Pump I.D. No.	HW Mgmt. Unit	Location
P-1A	Tank T-1A	Grinder Bldg, 442
P-1B	Tank T-1B	Grinder Bldg, 442
P-440	Incinerator 440	440 Pump House
P 441	Incinerator 441	441 Pump House

a.d. Flanges and Other Connectors

The following-flanges and other connectors identified in Attachment III.A shall be monitored within 5 days using Reference Method 21 (and must maintain a reading of less than 10,000 ppm) if evidence of a leak is found by

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visual, audible, olfactory, or any other detection method, and must comply with the leak repair program as specified in Attachment III.A.

Flange or Connector I.D. No.	HW Mgmt. Unit	Location
Tee 1A, flanged connection	Tank T-1A	Grinder Bldg, 442
Tee 1B, flanged connection	Tank T-1B	Grinder Bldg, 442
SG-1, flanged connection	Incinerator 440/441	Grinder Bldg, 442
PIT-1, screwed connection	Incinerator 440/441	Grinder Bldg, 442
PIT 2, serewed connection	Incinerator 440/441	Grinder Bldg, 442
Tee-A-440, flanged connection	Incinerator 440	440 Pump House
Tee-B-440, flanged connection	Incinerator 440	440 Pump House
Tee C 440, flanged connection	Incinerator 440	440 Pump House
Tee-D-440, flanged connection	Incinerator 440	440 Pump House
Tee-A-441, flanged connection	Incinerator 441	441 Pump House
Tee B 441, flanged connection	Incinerator 441	441 Pump House
Tee C 441, flanged connection	Incinerator 441	441 Pump House
Tee-D-441, flanged connection	Incinerator 441	441 Pump House
Adp A 440, hose adapter connection	Incinerator 440	440 Pump House
Adp B 440, hose adapter connection	Incinerator 440	440 Pump House
Adp-C-440, hose adapter connection	Incinerator 440	440 Pump House
Adp-D-440, hose adapter connection	Incinerator 440	440 Pump House
Adp E 440, hose adapter connection	Incinerator 440	440 Pump House
Adp-F-440, hose adapter connection	Incinerator 440	440 Pump House
Adp-G-440, hose adapter connection	Incinerator 440	440 Pump House
Adp-H-440, hose adapter connection	Incinerator 440	440 Pump House
Adp-A-441, hose adapter connection	Incinerator 441	441 Pump House
Adp-B-441, hose adapter connection	Incinerator 441	441 Pump House
Adp C 441, hose adapter connection	Incinerator 441	441 Pump House
Adp-D-441, hose adapter connection	Incinerator 441	441 Pump House
Adp-E-441, hose adapter connection	Incinerator 441	441 Pump House
Adp F 441, hose adapter connection	Incinerator 441	441 Pump House
Adp-G-441, hose adapter connection	Incinerator 441	441 Pump House
Adp-H-441, hose adapter connection	Incinerator 441	441 Pump House
Ell-A-440, flanged connection	Incinerator 440	440 Pump House
Ell-B-440, flanged connection	Incinerator 440	440 Pump House
Ell-A-441, flanged connection	Incinerator 441	441 Pump House
Ell-B-441, flanged connection	Incinerator 441	441 Pump House

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III.B.5. Recordkeeping and Reporting

- a. The Permittees shall keep on file the following equipment information as required by 40 CFR 264.1052 through 264.1060: listing of an identification number for each piece of equipment that contains or contacts hazardous wastes with an organic concentration of at least 10% by weight; the respective hazardous waste management unit identification; each piece of equipment's specific location at the facility; and the type of equipment; the hazardous waste state at the equipment and percent-by-weight total organics in the waste stream at the equipment; and the method of compliance with the standard.
- b. The Permittees shall identify each piece of leaking equipment and provide required recordkeeping as provided in 40 CFR 264.1064(d).
- e. The Permittees shall comply with the information requirements for equipment subject to 40 CFR 264.1052 through 264.1060.

Comment [RFAAP3]: Deleted as it duplicates the information required by "a" above.

- d.c. The Permittees shall keep on file information used in determining exemptions pursuant to 40 CFR 264.1060 and 1064(k).
- e.d. The Permittees shall report semi-annually to the Department the information on valve and pump leaks that were not repaired in accordance with requirements, and the dates of hazardous waste management unit shutdowns.

III.C. ORGANIC AIR EMISSION REQUIREMENTS FOR TANKS AND CONTAINERS

III.C.1. Applicability

- a. 40 CFR 264 Subpart CC applies to all tanks and containers identified in this Permit except as provided for in 40 CFR 264.1 and 264.1080(b).
- Permit Condition III.C., <u>apply applies</u> to <u>the</u> hazardous waste management units identified below, for which required control equipment has been installed and is operational or <u>which</u> are exempt from Subpart CC standards under 40 CFR 264.1082(c):

Unit Unit Designation Type		Description of Air Emission Control System		
T-1A and T-1B	tanks	Permanent total enclosure [40 CFR 264.1082(c)(5)(iii)]		
Trolley conveyor containers	container	Design capacity $\leq 0.1 \text{m}^3 [40 \text{ CFR } 264.1080(b)(2)]$		
HW accumulation container container		Design capacity $\leq 0.1 \text{m}^3 [40 \text{ CFR } 264.1080(b)(2)]$		

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III.C.2. Emission Control Technology

- a. The Permittees shall maintain all regulated units and associated emission control technology in accordance with Permit Condition III.C.2. and the detailed plans, schedules, information, and reports as contained in Attachments III.1.A, III.1.B, and III.1.C.
- b. The Permittees have elected to control hazardous waste organic air emissions in accordance with Permit Condition III.C. and 40 CFR 264, Subpart CC by demonstrating that the enclosure within which Tanks T-1A and T-1B are housed (Grinder Bldg, 442) is designed and operated in accordance with the criteria for permanent total enclosure as specified in "Procedure T Criteria for and Verification of a Permanent or Temporary Total Enclosure" under 40 CFR 52.471, Appendix B. The verification conducted in February 15, 2002 is provided as Attachment III.B.
- c. The Permittees shall perform the verification procedure for the enclosure (Grinder Bldg, 442) as specified in Section 5.0 to "Procedure T Criteria for and Verification of a Permanent or Temporary Total Enclosure" (see 40 CFR 52.741, Appendix B) annually. Copies of this verification shall also be maintained in the operating record for a minimum of three years.
- d. Pursuant to Permit Condition III.C.2.b. and Attachment III.B, all doors and vents of the Grinder Building, 442 must remain closed whenever the grinder is in operation or whenever there is waste in Tanks T-1A or T-1B, except to allow worker access or passage of material, wastes, or equipment into or out of the enclosure.
- e. The Permittees shall submit to the Department a verification (conducted within a year of the submittal date) pursuant to Permit Conditions III.C.2.e and III.C.3.
- f.e. Pursuant to 40 CFR 270.32 (b)(2), VOC emissions that have been captured from the Grinder Bldg, 442 shall not be discharged through a control device as required by 40 CFR 264.1084(i). Under the authority granted by 40 CFR 270.32(b)(2), the Department has granted an exclusion from this provision to ensure protection of human health and the surrounding environment.
- g.f. If for any reason the Grinder Bldg, 442 is not verified as a permanent total enclosure pursuant to Permit Conditions III.C.2.c., III.C.2.e., and III.C.3., the Permittees shall cease operation of Tanks T-1A and T-1B until organic air emissions controls in accordance with 40 CFR 264, Subpart CC, as applicable, are provided, or a repair is enacted that allows the building to requalify as a permanent total enclosure.

Comment [RFAAP4]: Due to the frequency with which this report is updated, we do not think it should be included in the Permit. Annual submittal to the Department should be sufficient.

Comment [RFAAP5]: Deleted as this requirement duplicated conditions found elsewhere in the permit (under III.C.3 below).

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III.C.3. Reporting Requirements

- a. For each tank or container which that manages hazardous waste that is exempted from using air emission controls, a written report shall be submitted to the Department within fifteen (15) days of each occurrence when hazardous waste is placed in the waste management unit in noncompliance with the conditions of 40 CFR 264.1082(c)(1) or (c)(2), as applicable. The written report shall contain the EPA I.D. number, facility name and address, a description of the noncompliance event and the cause, the dates of the noncompliance, and the actions taken to correct the noncompliance and prevent reoccurrence of the noncompliance.
- b. By March 31 of each year, the Permittees shall submit to the Department the annual verification of the permanent total enclosure pursant to Permit Conditions III.C.2.c. and III.C.2.e.
- e.—Pursuant to the exclusion 40 CFR 270.32 (b)(2) granted under III.C.2e above, the Permittees shall maintain in the facility operating record all documentation concerning the feasibility of discharging captured VOC emissions from the Grinder Bldg, 442 to a control device. A report documenting this feasibility must be submitted
- d.c. Pursuant to 40 CFR 270.32 (b)(2), the Permittees shall submit to the Department for review a report that meets the requirements of Attachment III.C once per permit termevery 3 years from the effective date of this permit. This report shall be prepared according to the scope of work provided in Attachment III.C.
- e-d. All reports prepared under this Permit shall be signed and dated by an authorized representative of the Permittees in accordance with Permit Condition I.I.3. (see Module I).

III.C.4. Notification of New Units

Prior to installing any tank, surface impoundment, container, or miscellaneous unit subject to 40 CFR 264, Subpart CC, the Permittees shall apply for a permit modification in accordance with Permit Condition I.B.2. (see Module I) and provide specific Part B information required under 40 CFR 270.27, as applicable.

III.D. ADDITIONAL INFORMATION

The Permittees shall operate the have developed a series of General Operating Procedures (GOPs), Unit Operating Procedures (UOPs), and Standing Operating Procedures (SOPs) which provide additional operating details of the hazardous waste storage and treatment units in a manner that will provide protection of human health and the environment. The Permittee shall develop These various

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written operating procedures that direct operators in safe and compliant operation of these units deal with a wide variety of issues that affect all aspects of storage and treatment units. These procedures shall be readily available for inspection and review at the RFAAP at the request of the Department.

For informational and completeness purposes, a tabulated list of all operating procedures relevant to any hazardous waste operations regulated by this Permit is provided in Table III-1. Requirements prescribed in the Permit Conditions (Modules I through IX) supersede the language of the operating procedures.

III.D.1. Revisions and Updates

The operating procedures are revised and updated by the Permittees on a periodic and/or as needed (e.g., implementation of an SOP reveals an inadequacy) basis.

- a. All operating procedures revised or updated during the previous year shall be submitted to the Department by March 31 of each year, except as indicated in Permit Condition III.D.1.b.
- b. Prior to implementation of any revision to an operating procedure that may result in a permit modification as specified in Appendix I to 40 CFR 270.42, a request for a permit modification must be submitted to the Department for review and approval.
- e. A request for a permit modification shall be submitted in accordance with Permit Condition I.B.2 (see Module I) along with the corresponding proposed revisions to operating procedures submitted in accordance with Permit Condition III.D.1.b.
- d. Requests for the addition or removal of any operating procedures from Table III-1 shall be made in accordance with Permit Condition I.B.2. (see Module I).
- e. The most current revisions of all operating procedures listed in Table III-1 shall be maintained in accordance with Permit Condition II.1.2. (see Module II).

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TABLE III-1

Operating Procedures

Procedure Type	Opn. No.	Area or Bldg No.	Procedure No.	Operation or Title
GOP		Plantwide	4 A 014	Cleaning/Decontamination of Contaminated Facilities Prior to Dismantling and Disposal by Alliant or Sub-Contractor
GOP			4-1-2B	Powder Van Operations
GOP		Propellant Areas	4-1-6	General Safety Rules Propellant Department
UOP		Loading Operations	4 3 2H	Pickup and Transporting Waste Explosive Material to the Explosive Hold House and/or Grinder House
UOP		Loading Operations	4 12 28	Delivering and/or Receiving Propellants and or Propellant Ingredients
GOP		NG-2 Area	4-15-53	Cleanup and Decontamination of NG/Nitrate Ester and Other Hazardous Spills
MOP		Maintenance	4-27-004(e)	Operation of the Decontamination Oven
SOP for Receiving and Storage	4	Designated Prod. Area Bldg.	RD 0000 L 001	Picking Up Propellant from Production Areas
SOP for Explosive Waste Incinerator	5	430, 4601-7	RD-0000-K-002	Transferring Waste from Storage Building to Grinder Building
SOP for Explosive Waste Incinerator	6	442, 447	RD-0000-K-002	Entering Grinder Building Slurry Pit Basement (Confined Space)
SOP for Explosive Waste Incinerator	7	442, 447	RD 0000 K 002	Preparing Grinder Building for Operation
SOP for Explosive Waste Incinerator	8	430, 442, 446, 4601-7	RD 0000 K 002	Loading the Trolley Conveyor
SOP for Explosive Waste Incinerator	9	442, 447	RD-0000-K-002	Grinding
SOP for Explosive Waste Incinerator	10	442, 447	RD-0000-K-002	Decanting Excess Water from Ground Material
SOP for Explosive Waste Incinerator	11	442, 447	RD 0000 K 002	Handling Metal Detector Trips

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TABLE III-1

Operating Procedures

Procedure Type	Opn. No.	Area or Bldg No.	Procedure No.	Operation or Title
SOP for Explosive Waste Incinerator	12	442, 447	RD-0000-K-002	Handling a Plugged Grinder Screen
SOP for Explosive Waste Incinerator	13	442, 447	RD-0000-K-002	Handling a Grinder Malfunction During Operations
SOP for Explosive Waste Incinerator	14	442, 447	RD 0000 K 002	Handling a Malfunction in the Oversize Detector
SOP for Explosive Waste Incinerator	15	442	RD-0000-K-002	Adding Antifoam to Makeup Water and Slurry Tanks
SOP for Explosive Waste Incinerator	16	442, 447	RD 0000 K 002	Grinder Shutdown Due to Vibration
SOP for Explosive Waste Incinerator	17	442, 447	RD-0000-K-002	Unloading a Malfunctioning Trolley Conveyor
SOP for Explosive Waste Incinerator	18	442, 447	RD 0000 K 002	Changing the Slurry Tank Agitator Speed
SOP for Explosive Waste Incinerator	19	442	RD 0000 K 002	Cleaning the Grinder for Maintenance Work
SOP for Explosive Waste Incinerator	26	442	RD 0000 K 002	Cleaning and Inspecting Sumps
SOP for Explosive Waste Incinerator	27	442, 447	RD 0000 K 002	Draining Slurry Tanks
SOP for Explosive Waste Incinerator	38	442	RD 0000 K 002	Pumping Water From Grinder Building Basement to Trailer

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MODULE III – LIST OF ATTACHMENTS

The following Attachments are incorporated, in their entirety, by reference into this Permit. These incorporated attachments are enforceable conditions of this Permit. Some of the documents contain excerpts from the Permittees' Hazardous Waste Permit Application. The Department has, as deemed necessary, modified specific language excerpted from the permit application. Additional modifications are prescribed in the Permit Conditions (Modules I through IX), and thereby supersede the language of the attachments. Facility operations shall be in accordance with the contents of the Attachments and this Permit.

Attachment III.A – Air Emission Standards for Equipment Leaks

Attachment III.B – Reserved Test Report for Procedure T Verification of
Total Enclosure Surrounding the Waste Propellant
Grinding Operation at the Radford Army Ammunition
Plant (February 19, 2002)

Attachment III.C _- Scope of Work for Report on Control Device Technologies

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PART III.1 – STORAGE/TREATMENT IN TANKS

III.1.A. PERMITTED WASTES

- III.1.A.1. Subject to the terms of this Permit, the Permittees may store and treat in tanks only the hazardous wastes specified in the Waste Analysis Plan, Attachment II.B (see Module II), of this Permit.
- III.1.A.2. The Permittees shall store or treat in tanks only waste generated at the facilityRFAAP or the NRU by either the Permittee or the RFAAP tenant organizations. This waste shall be within the limitations described in, as defined in Attachment II.B. The Permittees shall not store or treat any waste generated outside of the facility with the exception of those wastes originating from the NRU.
- III.1.A.3. The Permittees may store and/or treat hazardous waste only in tanks T-1A and T-1B which are located in the Grinder Building House, Building 442.

III.1.B. TANK MANAGEMENT PRACTICES

III.1.B.1. Design and Construction of Tanks

The Permittees shall construct, modify, and maintain all permitted hazardous waste storage and treatment tanks in accordance with the plans and specifications in Attachment III.1.A. In order to ensure sufficient structural strength, the Permittees shall maintain a minimum shell thickness of 0.25 inches for all permitted tanks at all times.

III.1.B.2. <u>Protection From Overfilling</u>

The Permittees shall prevent overfilling of tanks by the use of automatic high level alarms as specified in Attachment III.1.B.

III.1.B.3. The integrity of tank and process area containment systems shall be maintained. Cracks, gaps, loss of integrity, deterioration, corrosion, or erosion of pads, berms, curbs, sumps, construction joints, and coatings of the tank system area shall be repaired in accordance with the protocols and frequencies delineated in Attachments II.C (see Module II) and III.1.A.

III.1.C. SPECIAL REQUIREMENTS FOR REACTIVE WASTE

III.1.C.1. The Permittees shall not place reactive waste in a tank unless the procedures described in Attachment III.1.C are followed. The Permittees shall document compliance with this Permit condition as required by 40 CFR 264.17(c) and shall

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place this documentation in the operating record pursuant to Permit Condition II.I.2.e.vi. (see Module II).

III.1.C.2. The Permittees shall comply with the requirements for the maintenance of protective distances between all tank systems and any public ways, alleys, or an adjoining property line that can be built upon as required in Tables 2-1 through 2-6 of the National Fire Protection Association's "Flammable and Combustible Liquids Code," (1977 or 1981).

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PART III.1 – LIST OF ATTACHMENTS

The following Attachments are incorporated, in their entirety, by reference into this Permit. These incorporated attachments are enforceable conditions of this Permit. Some of the documents contain excerpts from the Permittees' Hazardous Waste Permit Application. The Department has, as deemed necessary, modified specific language excerpted from the permit application. Additional modifications are prescribed in the Permit Conditions (Modules I through IX), and thereby supersede the language of the attachments. Facility operations shall be in accordance with the contents of the Attachments and this Permit.

Attachment III.1.A – Plans and Specifications for Tanks

Attachment III.1.B – Storage and Treatment Tank Operation

Attachment III.1.C – Procedures for Handling Reactive Wastes in Tanks

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PART III.2 – INCINERATION

III.2.A. GENERAL SPECIFICATIONS

This Permit authorizes the simultaneous operation of two equivalent incinerators (i.e., 440 and 441). Per 40 CFR 264.340, the operating requirements pertaining to for these incinerators is are no longer regulated under RCRA once a facility demonstrates compliance with the HWC NESHAP and submits their Notification of Compliance (NOC), unless, the permit writer determines that limits above and beyond those required by the HWC NESHAP are necessary to protect human health or the environment. The potential impact of these units on human health and the environment was evaluated by conducting Human Health and Ecological Risk Assessments of the modeled emissions (based on trial burn data) from both incinerators operating simultaneously. The Human Health and Ecological Risk Assessments were approved by the Department on December 17, 2001. No permit limits other than those listed below and those required by the HWC NESHAP were necessary based upon the results of the risk assessments.

III.2.B. PERMITTED AND PROHIBITED WASTE FEED

- III.2.B.1. The only wastes that the Permittees may incinerate are those specified in Section II.B.1. of the Waste Analysis Plan, Attachment II.B (see Module II). Whenever waste is being incinerated, the Permittees shall not include any other materials in the feed to the incinerator except water from the plant water supply or surrogate waste materials injected for the purpose of compliance testing.
- III.2.B.2. The Permittees shall incinerate only slurried waste. The slurry shall be managed in accordance with the Waste Analysis Plan (Attachment II.B) and the Procedures for Handling Reactive Wastes in Tanks (Attachment III1.C).
- III.2.B.3. The Permittees shall incinerate only waste generated at the facility, as specified in Attachment II.B. The Permittees shall not incinerate any waste generated outside of the facility.

III.2.C. INSPECTION REQUIREMENTS

- III.2.C.1. The Permittees shall inspect the incineration unit in accordance with the Inspection Schedule, Attachment II.C (see Module II), and shall complete the following as part of these inspections:
 - The Permittees shall visually inspect the incinerator and the associated equipment thoroughly (including stack, pumps, valves, pipes, flanges, welds, bolted connections, threaded connections, etc.) for leaks, spills, rust, wear, and signs of tampering.

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III.2.D. <u>PERSONNEL TRAINING</u>

The Permittees shall follow the procedures in Personnel Training, Attachment II.D (see Module II).

III.2.E. <u>CONTINGENCY PLAN</u>

The Permittees shall follow the procedures in the Contingency Plan, Attachment II.E (see Module II).

III.2.F. CLOSURE

The Permittees shall follow the procedures in the Closure Plan, Attachment II.F (see Module II).

III.2.G. RECORDKEEPING

- III.2.G.1. The Permittees shall record and maintain in the operating record all the monitoring and inspection data compiled under the requirements of this Permit.
- III.2.G.2. The Permittees shall record and maintain in the operating record all waste feed determinations made pursuant to the Waste Analysis Plan, Attachment II.B (see Module II).

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TABLE III.2-1

MONITORING REQUIREMENTS FOR BOTH 440 AND 441 INCINERATION SYSTEMS

Operating Parameter Instrument Description	Instrument Location and Identification	Frequency Monitoring	Frequency Calibration
Slurry Tank 1A Level Control	Grinder Building LI-TIA	Continuous	Monthly
Slurry Tank 1B Level Control	Grinder Building _LI-TIB	Continuous	Monthly
Slurry Tank 1A -Slurry Density	Pump recycle discharge -Grinder Building	Continuous	Monthly
Slurry Tank 1B Slurry Density	Pump recycle discharge - Grinder Building	Continuous	Monthly
Slurry External Loop Feed Loop Pressure – dP Transmitter	Common pump discharge PT/PI	Continuous	Monthly
Slurry External Loop Loop Discharge Flow – Ultrasonic Flow Transmitter	Common loop discharge FT/FI	Continuous	Monthly

Comment [RFAAP6]: Deleted as there is no longer a solids feed rate limit or any other permit limit that would require density monitoring. This is done for safety purposes only.

^{*} Recorders shall be calibrated monthly

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PART III.2 – LIST OF ATTACHMENTS

The following Attachments are incorporated, in their entirety, by reference into this Permit. These incorporated attachments are enforceable conditions of this Permit. Some of the documents contain excerpts from the Permittees' Hazardous Waste Permit Application. The Department has, as deemed necessary, modified specific language excerpted from the permit application. Additional modifications are prescribed in the Permit Conditions (Modules I through IX), and thereby supersede the language of the attachments. Facility operations shall be in accordance with the contents of the Attachments and this Permit.

Attachment III.2.A – Plans and Specifications for Incinerators

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TABLE III.2-1

MONITORING REQUIREMENTS FOR BOTH 440 AND 441 INCINERATION SYSTEMS
PART III.3—

[RESERVED]

ATTACHMENT III.A AIR EMISSION STANDARDS FOR EQUIPMENT LEAKS

<u>ATTACHMENT III.A – AIR EMISSION STANDARDS FOR</u> EQUIPMENT LEAKS

III.A.1. <u>Applicability</u>

These regulations apply to the permitted treatment and storage area of the facility. Alliant Ammunition and Powder Company, LLC is the operator of the Radford Army Ammunition Plant (RFAAP). At this plant, where hazardous wastes with organic concentrations of 0 to 30 percent by weight are treated, stored and/or disposed via incineration in two RCRA permitted rotary kiln incinerators and ancillary equipment.

The equipment subject to the Air Emissions Standards for Equipment Leaks (9 _VAC 20-60-264; 40 CFR 264, Subpart BB) is that equipment that contains or contacts hazardous waste with organic concentrations of at least 10 percent by weight. The subject equipment, listed in Table ITable III.A-1, is the equipment that comes into contact with the waste slurry, a light liquid, before it is fed to the rotary kiln incinerators. Figures III.A-1 through III.A-4 shows the general area within which the provide a graphical depiction of each piece of equipment subject to Subpart BB monitoring subject equipment is located. This equipment includes various pumps, valves, and miscellaneous connections, each of which is marked in a manner such that they can be readily distinguished from other equipment. There are no compressors, pressure relief devices, sampling connecting systems, or open ended valves or lines that contact or contain such waste.

The maximum possible organic concentration of the waste that this equipment contacts or contains was determined from the maximum organic concentration (100%) of any propellant generated at the RFAAP-Facility. Before being burned in the incinerator, all propellants are ground into a slurry that is, at a minimum, 3.5 parts water for every part propellant. (This water to propellant ratio is a safety limitation, not a regulatory limitation.) Based on this specification, the maximum possible organic concentration (attributable to solid propellant) that the equipment listed in Table ITable III.A-1 could contain or contact would be 22%. This is the basis used for the organic concentration of < 30% listed in Table ITable III.A-1.

III.A.2. <u>Definitions</u>

All definitions used in this attachment have the meaning given them in 40 CFR Parts 260 to 266, including 264.1051.

III.A.3. Standards: Pumps in Light Liquid Service

Each pump identified in Table III.A-1 is subject to the standards of 9 VAC 20-60-264; 40 CFR 264.1052 for pumps in light liquid service. These pumps will be monitored monthly using Reference Method 21, along with other procedures

set forth in 9 VAC 20-60-264; and 40 CFR 264.1063(b). Additionally, each of these pumps shall be visually inspected each calendar week for indications of liquids dripping from the pump seal.

A leak will be detected if an instrument reading of greater than 10,000 ppm is measured, or if visual observation indicates that liquids are dripping from the pump seal.

If a leak is detected, it will be repaired as soon as possible, but no more than 15 _days after the initial detection, unless conditions exist to delay repair of the pump as described in Section III.A.6. A first attempt of repair will be made for all pumps within 5 days of the initial leak detection.

Of the pumps listed in Table III.A-1, none are equipped with dual mechanical seal systems that include a barrier fluid system, nor are any equipped with a closed vent system capable of capturing and transporting any leakage from the seal(s) to a control device. Therefore, none of these pumps are exempt from the monthly leak detection and repair standards.

If, at any point in time, one of the pumps indicated above, should be designated by the operator for no detectable emissions, as indicated by an instrument reading of less than 500 ppm above background, it will be tested for compliance initially upon designation, annually, and at any other time as requested by the Department. Any pump designated as such will have no externally actuated shaft that penetrates the pump housing, and will operate with emissions less than 500 ppm above background.

III.A.4. Standards: Valves in Gas/Vapor Service or Light Liquid Service

Each valve identified in Table III.A-1 is subject to the standards of 9 VAC 20-60-264; and 40 CFR 264.1057 for valves in light liquid service. These valves, except for those with special designations, will be monitored monthly using Reference Method 21, along with other procedures set forth in 9 VAC 20-60-264; and 40 CFR 264.1063(b).

A leak will be detected if an instrument reading of greater than 10,000 ppm is measured.

If a leak is detected, it will be repaired as soon as possible, but no more than 15 days after the initial detection, unless conditions exist to delay repair of the valve as described in Section III.A.6. A first attempt of repair will be made for all valves within 5 days of the initial leak detection. Repair attempts may include, but are not limited to, tightening the bonnet bolts, replacing the bonnet bolts, tightening the packing gland nuts, or injecting lubricant into the lubricated packing.

If results from valve monitoring indicate that no leaks have been detected on that valve for two successive months, the valve will be monitored the first month of every succeeding quarter, beginning with the next quarter. If, during the quarterly monitoring, a leak is detected on one of the valves under quarterly monitoring, the valve will return to monthly monitoring.

Additionally, if, at any point in time, one of the valves indicated above, should be designated by the operator for no detectable emissions, as indicated by an instrument reading of less than 500 ppm above background, it will be tested for compliance initially upon designation, annually, and at any other time as requested by the Department. Any valve designated as such will have no external actuating mechanism in contact with the hazardous waste stream, and will operate with emissions less than 500 ppm above background.

Some of the valves in light liquid service have been designated as difficult to monitor because the valve cannot be monitored without elevating the monitoring personnel more than 2 meters above a support surface. The hazardous waste management unit within which these valves are located was in operation prior to June 21, 1990. Each of the valves designated as difficult to monitor will be monitored at least once per calendar year.

Some of the valves in light liquid service have been designated as unsafe to monitor because they are located in the basement of the Grinder Building, which is a confined space. Personnel entering this area are required to wear oxygen monitoring equipment and may only remain in the area for a limited time. In addition, such monitoring exposes personnel to the pumping of waste slurry containing explosives, which can be unsafe. Each of the valves designated as unsafe to monitor will be monitored at least once per calendar year.

If the owner or operator should decide to designate any of the valves in Table I as unsafe to monitor, those valves will be incorporated into a written plan for monitoring, which will require that the valve be tested as frequently as possible during safe-to-monitor times. A valve will be designated as unsafe to monitor if monitoring personnel will be exposed to an immediate danger while trying to comply with the monthly monitoring requirements.

III.A.5. <u>Standards: Pumps and Valves in Heavy Liquid Service, Pressure Relief Devices in Light Liquid or Heavy Liquid Service, and Flanges and Other Connectors</u>

This facility has no pumps or valves in heavy liquid service, or pressure relief devices in light liquid service that are regulated by 9 VAC 20-60-264; or 40 CFR 264.1058. However, this facility does have some flanges and other connectors, listed in Table III.A-1, that contain or contact hazardous waste with organic concentrations of at least 10 percent by weight, and therefore, are subject to the standards of 9 VAC 20-60-264; and 40 CFR 264.1058.

Each of the connectors identified in Table III.A-1 are subject to the standards for flanges and other connectors. These connectors will be monitored within 5 days using Reference Method 21, along with other procedures set forth in 9 VAC 20-60-264; and 40 CFR 264.1063(b), if evidence of a potential leak is found by visual, audible, olfactory or any other detection method.

A leak will be detected if an instrument reading of greater than 10,000 ppm is measured.

If a leak is detected, it will be repaired as soon as possible, but no more than 15 days after the initial detection, unless conditions exist to delay repair of the connector. A first attempt of repair will be made for all flanges and other connectors within 5 days of the initial leak detection. Repair attempts may include, but are not limited to, tightening the bonnet bolts, replacing the bonnet bolts, tightening the packing gland nuts, or injecting lubricant into the lubricated packing.

III.A.6. <u>Delay of Repair</u>

Delay of repair, as regulated by 9 VAC 20-60-264; and 40 CFR 264.1059, will be allowed for the equipment subject to these regulations if the repair is technically infeasible without a hazardous waste management unit shutdown. If the repair is delayed because of this reason, repair it will be completed before the end of the next hazardous waste management unit shutdown.

Additionally, repair may be delayed for equipment that is isolated from the hazardous waste management unit, provided that the piece of equipment does not continue to contain or contact hazardous waste with organic concentrations of at least 10 percent by weight.

If repair is to be delayed for valves, the owner or operator will have determined that emissions of purged material resulting from immediate repair are greater than those resulting from delay of the repair. When the repair is completed, the purged material will be collected and destroyed, or recovered in a control device.

Delay of repair for valves beyond the unit shutdown will be allowed if replacement of the valve assembly is necessary during the unit shutdown, and if the valve assembly supplies were sufficiently stocked, but have since been depleted. Delay of repair beyond the next unit shutdown will not be permitted unless the shutdown occurs within 6 months of the previous hazardous waste management unit shutdown.

Leaks from pumps for which delay of repair is permitted will be those leaks that require the use of a dual mechanical seal system, equipped with a barrier fluid, to complete repair. Such leaks from pumps will be repaired no later than 6 months after the leak is detected.

III.A.7. Test Methods and Procedures

Leak detection monitoring shall be conducted in accordance with 9 VAC 20-60-264, 40 CFR 264.1063, and, consequently, Reference Method 21 as described in 40-CFR Part 60, by traversing the probe around and as close as possible to all potential leak interfaces.

The detection instrument used will meet the performance standards set forth in this method, and will be calibrated before use on each day of its use by the procedures indicated in Reference Method 21. The calibration gases for the leak detection instrument will be zero air, with less than 10 ppm of hydrocarbon in the air, and a mixture of methane or n-hexane and air at a concentration of at least 10,000 ppm methane or n-hexane.

If, at any time, the operator designates any of the equipment listed in Table III.A-1 for no detectable emissions, a performance test will be conducted. The methods used to conduct these performance tests, including determination of the background level, will be determined as described in Reference Method 21. The difference between the maximum concentration indicated by the instrument reading and the background level will be less than 500 ppm to confirm compliance.

Determinations of the organic concentration in the waste stream at each piece of equipment have been made using process knowledge as detailed previously in Section III.A.1will be made using one of the following methods: ASTM Method D 2267-88, E 169-87, E 168-88, E 260-85 (or the most current version of these ASTM methods), Method 9060 or 8260 of SW-846, or application of process knowledge. The samples used to make this determination will be representative of the highest total organic content hazardous waste that is expected to be contained in, or contact the equipment. When process knowledge is used to determine organic concentrations, appropriate documentation will be supplied to support the determination.

Once a determination is made for a piece of equipment, it can only be revised using the ASTM and SW-846 methods specified above. Additionally, if the owner/operator and the Director do not agree on a determination for a piece of equipment, a determination shall be made using either the ASTM or SW-846 methods.

Once a determination is made regarding the organic concentrations in the waste at a piece of equipment, the determination of light liquid service will be made using the vapor pressures for constituents, as given in standard reference texts, or as determined using ASTM D-2879-86.

III.A.8. Recordkeeping Requirements

The Permittees will maintain, in <u>a the</u> facility operating record, the following information for each piece of equipment subject to the Air Emissions Standards for Equipment Leaks, as required by 9 VAC 20-60-264; and 40 CFR 264.1064:

- The equipment identification number and hazardous waste management unit identification-;
- The location of the subject equipment within the facility, indicated on These locations will be described on a facility plot plan-;
- The type of equipment (e.g. pump, or valve);
- The percent-by-weight total organics in the hazardous waste stream at the equipment:
- The hazardous waste state at the equipment (e.g. gas/vapor, or liquid); and
- The method of compliance with the standard (e.g. monthly leak detection and repair).

Should a leak be detected, a weatherproof and readily visible identification tag, marked with the equipment ID number, the date evidence of a potential leak was found, and the date the leak was detected, will be attached to the piece of equipment. For all equipment, except valves, this tag will be removed once the leak is repaired. For valves, this tag will be removed after the valve has gone two successive months without a leak being detected.

Leak detection information will be recorded in an inspection log that is kept with the facility operating record. This log will indicate the following for each piece of equipment for which a leak is detected:

- The instrument and operator identification numbers, and equipment ID number-;
- The date that evidence of a potential leak was found-;
- The date that the leak was detected, and the dates of each repair attempt.
- The repair method(s) applied in each attempt to repair the leak-;
- The results of the repair attempt, recorded as one of the following: These results will be recorded as one of the following:
 - •-"Above 10,000" if the equipment is still leaking,
 - "Repaired" if the repair has been completed, or
 - "Repair Delayed" if the repair can-not be completed within 15 days after discovery of the leak.—;
- If "Repair Delayed" is recorded, the reason for delay and the expected date of repair will also be recorded.
- The documentation supporting the delay of repair of a valve past a hazardous waste management unit shutdown, accompanied with a signature of the owner, operator, or designate who made the decision that repair of the valve would be delayed; and
- The date of successful repair of the leak.

Formatte 2.13", List

In addition to the information above, the following information will be kept in a log that is recorded in the facility operating record. This information will be available upon request of the Director.

- A list of identification numbers for each piece of equipment subject to the regulations.;
- A list of identification numbers, signed by the owner or <u>operationoperator</u>, for equipment designated for no detectable emissions—; and
- A list indicating the dates of each compliance test, the background level measured during the test, and the maximum instrument reading measured for the equipment.

A list will be maintained of the identification numbers for those valves which are designated as either unsafe or difficult to monitor. With this list, the explanation for each designation, and the schedule for monitoring each valve will also be recorded.

All of the records described above relating to leak detection and repair results will be kept for at least 3 years in the facility operating record.

Equipment Id-ID No.	Unit No. Monitori ng Point ID	Location	Type of Equipment	Service	% Organic	Method of Compliance
P-1A	Tank ACT	Grinder Building	Pump	Light Liquid	0 to 30%	Monthly LDAR
P-1B	Tank BC	Grinder Building	Pump	Light Liquid	0 to 30%	Monthly LDAR
P-440	440 <u>ED</u>	440 Pump House	Pump	Light Liquid	0 to 30%	Monthly LDAR
P-441	441 <u>CD</u>	441 Pump House	Pump	Light Liquid	0 to 30%	Monthly LDAR
V- A- 440 <u>A</u>	440 <u>DV</u>	440 Pump House	Valve	Light Liquid	0 to 30%	Monthly LDAR
V- B- 440 <u>B</u>	440 <u>DZ</u>	440 Pump House	Valve	Light Liquid	0 to 30%	Monthly LDAR
V- A- 441 <u>A</u>	<u>BY</u> 441	441 Pump House	Valve	Light Liquid	0 to 30%	Monthly LDAR
V- <u>B-441</u> <u>B</u>	<u>CA</u> 441	441 Pump House	Valve	Light Liquid	0 to 30%	Monthly LDAR
V-14	Tank ACM	Grinder Building	Valve: Unsafe to monitor	Light Liquid	0 to 30%	Monthly Annual LDAR
V-15	Tank BB	Grinder Building	Valve: Unsafe to monitor	Light Liquid	0 to 30%	Annual Monthly LDAR
V-17A	Tank ACW	Grinder Building	Valve: Unsafe to monitor	Light Liquid	0 to 30%	Annual Monthly LDAR
V-17B	Tank BL	Grinder Building	Valve: Unsafe to monitor	Light Liquid	0 to 30%	Annual Monthly LDAR
V-18A	Tank ACV	Grinder Building	Valve: Unsafe to monitor	Light Liquid	0 to 30%	Annual Monthly LDAR
V-18B	Tank BK	Grinder Building	Valve: Unsafe to monitor	Light Liquid	0 to 30%	Annual Monthly LDAR
V-27A	Tank AEN	Grinder Building	Valve: Unsafe to monitor	Light Liquid	0 to 30%	Annual Monthly LDAR
V-27B	Tank BBW	Grinder Building	Valve: Unsafe to monitor	Light Liquid	0 to 30%	Annual Monthly LDAR
<u>V-130A</u>	<u>FU</u>	Grinder Building	Valve: Unsafe to monitor	Light Liquid	<u>0 to 30%</u>	Annual LDAR
<u>V-130B</u>	FT	Grinder Building	Valve: Unsafe to monitor	<u>Light Liquid</u>	<u>0 to 30%</u>	Annual LDAR
<u>V-300</u>	<u>N</u>	Grinder Building	Valve: Unsafe to monitor	<u>Light Liquid</u>	<u>0 to 30%</u>	Annual LDAR
<u>MBV-1</u>	<u>FY</u>	Grinder Building	Valve: Unsafe to monitor	<u>Light Liquid</u>	<u>0 to 30%</u>	Annual LDAR
MBV-2	<u>GA</u>	Grinder Building	Valve: Unsafe to monitor	<u>Light Liquid</u>	<u>0 to 30%</u>	Annual LDAR
V-440S	<u>AG</u> 440	Slurry Loop	Valve: Difficult to Monitor	Light Liquid	0 to 30%	Annual LDAR

Equipment Id-ID No.	Unit No.Monitori ng Point ID	Location	Type of Equipment	Service	% Organic	Method of Compliance
V-440R	<u>AF440</u>	Slurry Loop	Valve: Difficult to Monitor	Light Liquid	0 to 30%	Annual LDAR
V-441S	<u>AH</u> 441	Slurry Loop	Valve: Difficult to Monitor	Light Liquid	0 to 30%	Annual LDAR
V-441R	<u>BC</u> 441	Slurry Loop	Valve: Difficult to Monitor	Light Liquid	0 to 30%	Annual LDAR
<u>Tee-1ACON-</u> <u>A</u>	Tank AA	Grinder Building	Flanged Connection	Light Liquid	0 to 30%	LDAR for Connectors
Tee-1B	Tank B	Grinder Building	Flanged Connection	Light Liquid	0 to 30%	LDAR for Connectors
<u>CON-D</u>	<u>D</u>	Grinder Building	Connection	<u>Light Liquid</u>	<u>0 to 30%</u>	LDAR for Connectors
<u>CON-E</u>	<u>E</u>	Grinder Building	Connection	Light Liquid	<u>0 to 30%</u>	LDAR for Connectors
CON-F	<u>F</u>	Grinder Building	Connection	Light Liquid	<u>0 to 30%</u>	LDAR for Connectors
<u>CON-G</u>	<u>G</u>	Grinder Building	Connection	<u>Light Liquid</u>	<u>0 to 30%</u>	LDAR for Connectors
CON-H	<u>H</u>	Grinder Building	Connection	Light Liquid	<u>0 to 30%</u>	LDAR for Connectors
<u>CON-M</u>	<u>M</u>	Grinder Building	Connection	<u>Light Liquid</u>	<u>0 to 30%</u>	LDAR for Connectors
CON-O	<u>O</u>	Grinder Building	Connection	<u>Light Liquid</u>	<u>0 to 30%</u>	LDAR for Connectors
CON-Q	Q	Grinder Building	Connection	<u>Light Liquid</u>	<u>0 to 30%</u>	LDAR for Connectors
<u>CON-R</u>	<u>R</u>	Grinder Building	Connection	<u>Light Liquid</u>	<u>0 to 30%</u>	LDAR for Connectors
<u>CON-S</u>	<u>S</u>	Grinder Building	Connection	<u>Light Liquid</u>	<u>0 to 30%</u>	LDAR for Connectors
<u>CON-T</u>	<u>T</u>	Grinder Building	Connection	<u>Light Liquid</u>	<u>0 to 30%</u>	LDAR for Connectors
CON-BO	<u>BF</u>	Grinder Building	Connection	<u>Light Liquid</u>	<u>0 to 30%</u>	LDAR for Connectors
CON-BO	<u>BO</u>	Grinder Building	Connection	<u>Light Liquid</u>	<u>0 to 30%</u>	LDAR for Connectors
<u>CON-BP</u>	<u>BP</u>	Grinder Building	Connection	<u>Light Liquid</u>	<u>0 to 30%</u>	LDAR for Connectors
CON-BQ	BQ	Grinder Building	Connection	<u>Light Liquid</u>	<u>0 to 30%</u>	LDAR for Connectors
CON-BO	<u>BR</u>	Grinder Building	Connection	<u>Light Liquid</u>	<u>0 to 30%</u>	LDAR for Connectors
<u>CON-BS</u>	<u>BS</u>	Grinder Building	Connection	<u>Light Liquid</u>	<u>0 to 30%</u>	LDAR for Connectors

Equipment Id-ID No.	Unit No.Monitori ng Point ID	Location	Type of Equipment	Service	% Organic	Method of Compliance
<u>CON-BU</u>	<u>BU</u>	Grinder Building	Connection	<u>Light Liquid</u>	<u>0 to 30%</u>	LDAR for Connectors
<u>CON-CN</u>	<u>CN</u>	Grinder Building	Connection	Light Liquid	<u>0 to 30%</u>	LDAR for Connectors
CON-CO	<u>CO</u>	Grinder Building	Connection	<u>Light Liquid</u>	<u>0 to 30%</u>	LDAR for Connectors
CON-CP	<u>CP</u>	Grinder Building	Connection	<u>Light Liquid</u>	<u>0 to 30%</u>	LDAR for Connectors
CON-CQ	CQ	Grinder Building	Connection	Light Liquid	<u>0 to 30%</u>	LDAR for Connectors
<u>CON-CR</u>	<u>CR</u>	Grinder Building	Connection	<u>Light Liquid</u>	<u>0 to 30%</u>	LDAR for Connectors
<u>CON-CS</u>	<u>CS</u>	Grinder Building	Connection	<u>Light Liquid</u>	<u>0 to 30%</u>	LDAR for Connectors
<u>CON-CU</u>	<u>CU</u>	Grinder Building	Connection	Light Liquid	<u>0 to 30%</u>	LDAR for Connectors
<u>CON-FA</u>	<u>FA</u>	Grinder Building	Connection	<u>Light Liquid</u>	<u>0 to 30%</u>	LDAR for Connectors
<u>CON-FB</u>	<u>FB</u>	Grinder Building	Connection	<u>Light Liquid</u>	<u>0 to 30%</u>	LDAR for Connectors
CON-FC	<u>FC</u>	Grinder Building	Connection	Light Liquid	<u>0 to 30%</u>	LDAR for Connectors
CON-FD	<u>FD</u>	Grinder Building	Connection	<u>Light Liquid</u>	<u>0 to 30%</u>	LDAR for Connectors
<u>CON-FE</u>	<u>FE</u>	Grinder Building	Connection	<u>Light Liquid</u>	<u>0 to 30%</u>	LDAR for Connectors
<u>CON-FF</u>	<u>FF</u>	Grinder Building	Connection	Light Liquid	<u>0 to 30%</u>	LDAR for Connectors
<u>CON-FG</u>	<u>FG</u>	Grinder Building	Connection	Light Liquid	<u>0 to 30%</u>	LDAR for Connectors
CON-FH	<u>FH</u>	Grinder Building	Connection	<u>Light Liquid</u>	<u>0 to 30%</u>	LDAR for Connectors
CON-FI	<u>FI</u>	Grinder Building	Connection	Light Liquid	<u>0 to 30%</u>	LDAR for Connectors
CON-FJ	<u>FJ</u>	Grinder Building	Connection	Light Liquid	<u>0 to 30%</u>	LDAR for Connectors
<u>CON-FK</u>	<u>FK</u>	Grinder Building	Connection	Light Liquid	<u>0 to 30%</u>	LDAR for Connectors
CON-FL	<u>FL</u>	Grinder Building	Connection	Light Liquid	<u>0 to 30%</u>	LDAR for Connectors
<u>CON-FM</u>	<u>FM</u>	Grinder Building	Connection	<u>Light Liquid</u>	<u>0 to 30%</u>	LDAR for Connectors
<u>CON-FN</u>	<u>FN</u>	Grinder Building	Connection	<u>Light Liquid</u>	<u>0 to 30%</u>	LDAR for Connectors

Equipment Id-ID No.	Unit No. Monitori ng Point ID	Location	Type of Equipment	Service	% Organic	Method of Compliance
CON-FO	<u>FO</u>	Grinder Building	Connection	Light Liquid	<u>0 to 30%</u>	LDAR for Connectors
CON-FP	<u>FP</u>	Grinder Building	Connection	Light Liquid	<u>0 to 30%</u>	LDAR for Connectors
<u>CON-FQ</u>	FQ	Grinder Building	Connection	Light Liquid	<u>0 to 30%</u>	LDAR for Connectors
<u>CON-FR</u>	<u>FR</u>	Grinder Building	Connection	<u>Light Liquid</u>	<u>0 to 30%</u>	LDAR for Connectors
<u>CON-FS</u>	<u>FS</u>	Grinder Building	Connection	Light Liquid	<u>0 to 30%</u>	LDAR for Connectors
<u>CON-FV</u>	<u>FV</u>	Grinder Building	Connection	Light Liquid	<u>0 to 30%</u>	LDAR for Connectors
<u>CON-FW</u>	<u>FW</u>	Grinder Building	Connection	Light Liquid	<u>0 to 30%</u>	LDAR for Connectors
<u>CON-FX</u>	<u>FX</u>	Grinder Building	Connection	Light Liquid	<u>0 to 30%</u>	LDAR for Connectors
<u>CON-FZ</u>	<u>FZ</u>	Grinder Building	Connection	Light Liquid	<u>0 to 30%</u>	LDAR for Connectors
CON-GB	<u>GB</u>	Grinder Building	Connection	Light Liquid	<u>0 to 30%</u>	LDAR for Connectors
CON-GC	<u>GC</u>	Grinder Building	Connection	Light Liquid	<u>0 to 30%</u>	LDAR for Connectors
CON-GD	<u>GD</u>	Grinder Building	Connection	Light Liquid	<u>0 to 30%</u>	LDAR for Connectors
CON-GE	<u>GE</u>	Grinder Building	Connection	Light Liquid	<u>0 to 30%</u>	LDAR for Connectors
CON-GF	<u>GF</u>	Grinder Building	Connection	Light Liquid	<u>0 to 30%</u>	LDAR for Connectors
<u>CON-GG</u>	<u>GG</u>	Grinder Building	Connection	Light Liquid	<u>0 to 30%</u>	LDAR for Connectors
<u>CON-GH</u>	<u>GH</u>	Grinder Building	Connection	Light Liquid	<u>0 to 30%</u>	LDAR for Connectors
<u>CON-GG</u>	<u>GI</u>	Grinder Building	Connection	Light Liquid	<u>0 to 30%</u>	LDAR for Connectors
SG-1	440/441 <u>BV</u>	Grinder Building	Flanged Connection	Light Liquid	0 to 30%	LDAR for Connectors
PIT-1	440/441 <u>PIT-1</u>	Grinder Building	Screwed Connection	Light Liquid	0 to 30%	LDAR for Connectors
PIT-2	440/441 <u>PIT-2</u>	Grinder Building	Screwed Connection	Light Liquid	0 to 30%	LDAR for Connectors
Tee A 440CON-DW	440 <u>DW</u>	440 Pump House	Flanged Connection	Light Liquid	0 to 30%	LDAR for Connectors
Tee B	440 <u>DX</u>	440 Pump House	Flanged Connection	Light Liquid	0 to 30%	LDAR for Connectors

Equipment Id-ID No.	Unit No.Monitori ng Point ID	Location	Type of Equipment	Service	% Organic	Method of Compliance
440 <u>CON-DX</u>						
Tee-C- 440CON-DY	440 <u>DY</u>	440 Pump House	Flanged Connection	Light Liquid	0 to 30%	LDAR for Connectors
Tee D 440 <u>CON-EA</u>	440 <u>EA</u>	440 Pump House	Flanged Connection	Light Liquid	0 to 30%	LDAR for Connectors
<u>CON-EB</u>	<u>EB</u>	440 Pump House	Connection	<u>Light Liquid</u>	<u>0 to 30%</u>	LDAR for Connectors
<u>CON-EC</u>	<u>EC</u>	440 Pump House	Connection	<u>Light Liquid</u>	<u>0 to 30%</u>	LDAR for Connectors
<u>CON-EE</u>	<u>EE</u>	440 Pump House	Connection	<u>Light Liquid</u>	<u>0 to 30%</u>	LDAR for Connectors
<u>CON-EF</u>	<u>EF</u>	440 Pump House	Connection	<u>Light Liquid</u>	<u>0 to 30%</u>	LDAR for Connectors
<u>CON-EG</u>	<u>EG</u>	440 Pump House	Connection	<u>Light Liquid</u>	<u>0 to 30%</u>	LDAR for Connectors
<u>CON-EH</u>	<u>EH</u>	440 Pump House	Connection	<u>Light Liquid</u>	<u>0 to 30%</u>	LDAR for Connectors
<u>CON-EJ</u>	<u>EJ</u>	440 Pump House	Connection	<u>Light Liquid</u>	<u>0 to 30%</u>	LDAR for Connectors
<u>CON-EK</u>	<u>EK</u>	440 Pump House	Connection	<u>Light Liquid</u>	<u>0 to 30%</u>	LDAR for Connectors
CON-EL	<u>EL</u>	440 Pump House	Connection	Light Liquid	<u>0 to 30%</u>	LDAR for Connectors
CON-JA	<u>JA</u>	440 Pump House	Connection	Light Liquid	<u>0 to 30%</u>	LDAR for Connectors
CON-JB	<u>JB</u>	440 Pump House	Connection	<u>Light Liquid</u>	<u>0 to 30%</u>	LDAR for Connectors
CON-JC	<u>JC</u>	440 Pump House	Connection	Light Liquid	<u>0 to 30%</u>	LDAR for Connectors
CON-JD	<u>JD</u>	440 Pump House	Connection	Light Liquid	<u>0 to 30%</u>	LDAR for Connectors
CON-JE	<u>JE</u>	440 Pump House	Connection	Light Liquid	<u>0 to 30%</u>	LDAR for Connectors
CON-JF	<u>JF</u>	440 Pump House	Connection	Light Liquid	<u>0 to 30%</u>	LDAR for Connectors
CON-JG	<u>JG</u>	440 Pump House	Connection	<u>Light Liquid</u>	<u>0 to 30%</u>	LDAR for Connectors
CON-JH	<u>JH</u>	440 Pump House	Connection	<u>Light Liquid</u>	<u>0 to 30%</u>	LDAR for Connectors
CON-JH	<u>JL</u>	440 Pump House	Connection	<u>Light Liquid</u>	<u>0 to 30%</u>	LDAR for Connectors

Equipment Id-ID No.	Unit No.Monitori ng Point ID	Location	Type of Equipment	Service	% Organic	Method of Compliance
Tee A 441 <u>CON-AQ</u>	441 <u>AQ</u>	441 Pump House	Flanged Connection	Light Liquid	0 to 30%	LDAR for Connectors
Tee B 441CON-AR	441 <u>AR</u>	441 Pump House	Flanged Connection	Light Liquid	0 to 30%	LDAR for Connectors
Tee-C- 441CON-AS	441 <u>AS</u>	441 Pump House	Flanged Connection	Light Liquid	0 to 30%	LDAR for Connectors
Tee D 441CON-AT	441 <u>AT</u>	441 Pump House	Flanged Connection	Light Liquid	0 to 30%	LDAR for Connectors
Adp A- 440CON-BZ	440 <u>BZ</u>	441 Pump House440 Pump House	Connection Hose Adapter Connection	Light Liquid	0 to 30%	LDAR for Connectors
Adp B- 440CON-CB	440 <u>CB</u>	441 Pump House440 Pump House	ConnectionHose Adapter Connection	Light Liquid	0 to 30%	LDAR for Connectors
Adp C 440CON-CC	440 <u>CC</u>	441 Pump House440 Pump House	ConnectionHose Adapter Connection	Light Liquid	0 to 30%	LDAR for Connectors
Adp D- 440CON-CE	440 <u>CE</u>	441 Pump House440 Pump House	Connection Hose Adapter Connection	Light Liquid	0 to 30%	LDAR for Connectors
Adp E 440CON-CF	440 <u>CF</u>	441 Pump House440 Pump House	Connection Hose Adapter Connection	Light Liquid	0 to 30%	LDAR for Connectors
Adp F 440CON-CG	440 <u>CG</u>	441 Pump House440 Pump House	ConnectionHose Adapter Connection	Light Liquid	0 to 30%	LDAR for Connectors
Adp G- 440CON-CH	440 <u>CH</u>	441 Pump House440 Pump House	Connection Hose Adapter Connection	Light Liquid	0 to 30%	LDAR for Connectors

Equipment Id-ID No.	Unit No. Monitori ng Point ID	Location	Type of Equipment	Service	% Organic	Method of Compliance
Adp-H- 440CON-CI	440 <u>CI</u>	441 Pump House440 Pump House	ConnectionHose Adapter Connection	Light Liquid	0 to 30%	LDAR for Connectors
CAdp A- 441ON-HA	441 <u>HA</u>	441 Pump House441 Pump House	ConnectionHose Adapter Connection	Light Liquid	0 to 30%	LDAR for Connectors
Adp B- 441CON-HB	441 <u>HB</u>	441 Pump House441 Pump House	ConnectionHose Adapter Connection	Light Liquid	0 to 30%	LDAR for Connectors
Adp C 44CON-HC 1	441 <u>HC</u>	441 Pump House441 Pump House	ConnectionHose Adapter Connection	Light Liquid	0 to 30%	LDAR for Connectors
Adp D 44CON-HD 1	441 <u>HD</u>	441 Pump House441 Pump House	ConnectionHose Adapter Connection	Light Liquid	0 to 30%	LDAR for Connectors
Adp E 44CON-HE 1	441 <u>HE</u>	441 Pump House441 Pump House	ConnectionHose Adapter Connection	Light Liquid	0 to 30%	LDAR for Connectors
Adp F 44CON-HF 1	441 <u>HF</u>	441 Pump House441 Pump House	ConnectionHose Adapter Connection	Light Liquid	0 to 30%	LDAR for Connectors
Adp G 44CON-HG 1	441 <u>HG</u>	441 Pump House441 Pump House	ConnectionHose Adapter Connection	Light Liquid	0 to 30%	LDAR for Connectors
Adp H- 44CON-HH 1	441 <u>HH</u>	441 Pump House441 Pump House	ConnectionHose Adapter Connection	Light Liquid	0 to 30%	LDAR for Connectors
EII A- 440 <u>CON-HI</u>	440 <u>HI</u>	441 Pump House 440 Pump	ConnectionFlanged Connection	Light Liquid	0 to 30%	LDAR for Connectors

Equipment Id-ID No.	Unit No.Monitori ng Point ID	Location	Type of Equipment	Service	% Organic	Method of Compliance
		House				
EH B- 440CON-HJ	440 <u>HJ</u>	441 Pump House440 Pump House	ConnectionFlanged Connection	Light Liquid	0 to 30%	LDAR for Connectors
CON-U	<u>U</u>	Slurry Loop	Connection	<u>Light Liquid</u>	<u>0 to 30%</u>	LDAR for Connectors
<u>CON-V</u>	<u>V</u>	Slurry Loop	Connection	<u>Light Liquid</u>	<u>0 to 30%</u>	LDAR for Connectors
<u>CON-W</u>	<u>W</u>	Slurry Loop	Connection	<u>Light Liquid</u>	<u>0 to 30%</u>	LDAR for Connectors
CON-X	X	Slurry Loop	Connection	<u>Light Liquid</u>	<u>0 to 30%</u>	LDAR for Connectors
CON-Y	<u>Y</u>	Slurry Loop	Connection	<u>Light Liquid</u>	<u>0 to 30%</u>	LDAR for Connectors
<u>CON-Z</u>	<u>Z</u>	Slurry Loop	Connection	Light Liquid	<u>0 to 30%</u>	LDAR for Connectors
CON-AA	<u>AA</u>	Slurry Loop	Connection	Light Liquid	<u>0 to 30%</u>	LDAR for Connectors
CON-AB	<u>AB</u>	Slurry Loop	Connection	<u>Light Liquid</u>	<u>0 to 30%</u>	LDAR for Connectors
<u>CON-AC</u>	<u>AC</u>	Slurry Loop	Connection	<u>Light Liquid</u>	<u>0 to 30%</u>	LDAR for Connectors
<u>CON-AD</u>	<u>AD</u>	Slurry Loop	Connection	<u>Light Liquid</u>	<u>0 to 30%</u>	LDAR for Connectors
CON-AE	<u>AE</u>	Slurry Loop	Connection	<u>Light Liquid</u>	<u>0 to 30%</u>	LDAR for Connectors
<u>CON-AI</u>	<u>AI</u>	Slurry Loop	Connection	<u>Light Liquid</u>	<u>0 to 30%</u>	LDAR for Connectors
<u>CON-AJ</u>	<u>AJ</u>	Slurry Loop	Connection	<u>Light Liquid</u>	<u>0 to 30%</u>	LDAR for Connectors
CON-AK	<u>AK</u>	Slurry Loop	Connection	<u>Light Liquid</u>	<u>0 to 30%</u>	LDAR for Connectors
<u>CON-AL</u>	<u>AL</u>	Slurry Loop	Connection	<u>Light Liquid</u>	<u>0 to 30%</u>	LDAR for Connectors
<u>CON-AM</u>	<u>AM</u>	Slurry Loop	Connection	<u>Light Liquid</u>	<u>0 to 30%</u>	LDAR for Connectors
<u>CON-AN</u>	AN	Slurry Loop	Connection	<u>Light Liquid</u>	<u>0 to 30%</u>	LDAR for Connectors
CON-AO	<u>AO</u>	Slurry Loop	Connection	<u>Light Liquid</u>	<u>0 to 30%</u>	LDAR for Connectors
<u>CON-AP</u>	<u>AP</u>	Slurry Loop	Connection	<u>Light Liquid</u>	<u>0 to 30%</u>	LDAR for Connectors

Equipment Id-ID No.	Unit No.Monitori ng Point ID	Location	Type of Equipment	Service	% Organic	Method of Compliance
<u>CON-AU</u>	<u>AU</u>	Slurry Loop	Connection	Light Liquid	<u>0 to 30%</u>	LDAR for Connectors
<u>CON-AV</u>	AV	Slurry Loop	Connection	<u>Light Liquid</u>	<u>0 to 30%</u>	LDAR for Connectors
<u>CON-AW</u>	<u>AW</u>	Slurry Loop	Connection	<u>Light Liquid</u>	<u>0 to 30%</u>	LDAR for Connectors
<u>CON-AX</u>	<u>AX</u>	Slurry Loop	Connection	<u>Light Liquid</u>	<u>0 to 30%</u>	LDAR for Connectors
<u>CON-AY</u>	<u>AY</u>	Slurry Loop	Connection	<u>Light Liquid</u>	<u>0 to 30%</u>	LDAR for Connectors
<u>CON-AZ</u>	<u>AZ</u>	Slurry Loop	Connection	<u>Light Liquid</u>	<u>0 to 30%</u>	LDAR for Connectors
<u>CON-BA</u>	<u>BA</u>	Slurry Loop	Connection	<u>Light Liquid</u>	<u>0 to 30%</u>	LDAR for Connectors
CON-BB	<u>BB</u>	Slurry Loop	Connection	<u>Light Liquid</u>	<u>0 to 30%</u>	LDAR for Connectors
CON-BD	<u>BD</u>	Slurry Loop	Connection	<u>Light Liquid</u>	<u>0 to 30%</u>	LDAR for Connectors
<u>CON-BE</u>	<u>BE</u>	Slurry Loop	Connection	<u>Light Liquid</u>	<u>0 to 30%</u>	LDAR for Connectors
<u>CON-BF</u>	<u>BF</u>	Slurry Loop	Connection	<u>Light Liquid</u>	<u>0 to 30%</u>	LDAR for Connectors
CON-BG	<u>BG</u>	Slurry Loop	Connection	<u>Light Liquid</u>	<u>0 to 30%</u>	LDAR for Connectors
CON-BH	<u>BH</u>	Slurry Loop	Connection	<u>Light Liquid</u>	<u>0 to 30%</u>	LDAR for Connectors
<u>CON-BI</u>	<u>BI</u>	Slurry Loop	Connection	<u>Light Liquid</u>	<u>0 to 30%</u>	LDAR for Connectors
<u>CON-BJ</u>	<u>BJ</u>	Slurry Loop	Connection	<u>Light Liquid</u>	<u>0 to 30%</u>	LDAR for Connectors
<u>CON-BK</u>	<u>BK</u>	Slurry Loop	Connection	<u>Light Liquid</u>	<u>0 to 30%</u>	LDAR for Connectors
<u>CON-BL</u>	<u>BL</u>	Slurry Loop	Connection	<u>Light Liquid</u>	<u>0 to 30%</u>	LDAR for Connectors
<u>CON-BM</u>	<u>BM</u>	Slurry Loop	Connection	<u>Light Liquid</u>	<u>0 to 30%</u>	LDAR for Connectors
CON-BN	<u>BN</u>	Slurry Loop	Connection	<u>Light Liquid</u>	<u>0 to 30%</u>	LDAR for Connectors
<u>CON-CY</u>	<u>CY</u>	Slurry Loop	Connection	<u>Light Liquid</u>	<u>0 to 30%</u>	LDAR for Connectors
<u>CON-CZ</u>	<u>CZ</u>	Slurry Loop	Connection	<u>Light Liquid</u>	<u>0 to 30%</u>	LDAR for Connectors
CON-DA	<u>DA</u>	Slurry Loop	Connection	<u>Light Liquid</u>	<u>0 to 30%</u>	LDAR for Connectors

Equipment Id-ID No.	Unit No.Monitori ng Point ID	Location	Type of Equipment	Service	% Organic	Method of Compliance
CON-DB	<u>DB</u>	Slurry Loop	Connection	<u>Light Liquid</u>	<u>0 to 30%</u>	LDAR for Connectors
<u>CON-DC</u>	<u>DC</u>	Slurry Loop	Connection	<u>Light Liquid</u>	<u>0 to 30%</u>	LDAR for Connectors
CON-DD	<u>DD</u>	Slurry Loop	Connection	<u>Light Liquid</u>	<u>0 to 30%</u>	LDAR for Connectors
CON-DE	<u>DE</u>	Slurry Loop	Connection	<u>Light Liquid</u>	<u>0 to 30%</u>	LDAR for Connectors
CON-DF	<u>DF</u>	Slurry Loop	Connection	<u>Light Liquid</u>	<u>0 to 30%</u>	LDAR for Connectors
<u>CON-DG</u>	<u>DG</u>	Slurry Loop	Connection	<u>Light Liquid</u>	<u>0 to 30%</u>	LDAR for Connectors
CON-DH	<u>DH</u>	Slurry Loop	Connection	<u>Light Liquid</u>	<u>0 to 30%</u>	LDAR for Connectors
<u>CON-DI</u>	<u>DI</u>	Slurry Loop	Connection	<u>Light Liquid</u>	<u>0 to 30%</u>	LDAR for Connectors
CON-DJ	DJ	Slurry Loop	Connection	<u>Light Liquid</u>	<u>0 to 30%</u>	LDAR for Connectors
CON-DK	<u>DK</u>	Slurry Loop	Connection	<u>Light Liquid</u>	<u>0 to 30%</u>	LDAR for Connectors
CON-DL	<u>DL</u>	Slurry Loop	Connection	<u>Light Liquid</u>	<u>0 to 30%</u>	LDAR for Connectors
CON-DM	<u>DM</u>	Slurry Loop	Connection	<u>Light Liquid</u>	<u>0 to 30%</u>	LDAR for Connectors
<u>CON-DN</u>	<u>DN</u>	Slurry Loop	Connection	<u>Light Liquid</u>	<u>0 to 30%</u>	LDAR for Connectors
CON-DO	<u>DO</u>	Slurry Loop	Connection	<u>Light Liquid</u>	<u>0 to 30%</u>	LDAR for Connectors
CON-DP	<u>DP</u>	Slurry Loop	Connection	<u>Light Liquid</u>	<u>0 to 30%</u>	LDAR for Connectors
<u>CON-DQ</u>	DQ	Slurry Loop	Connection	<u>Light Liquid</u>	<u>0 to 30%</u>	LDAR for Connectors
<u>CON-DR</u>	<u>DR</u>	Slurry Loop	Connection	<u>Light Liquid</u>	<u>0 to 30%</u>	LDAR for Connectors
<u>CON-DS</u>	<u>DS</u>	Slurry Loop	Connection	<u>Light Liquid</u>	<u>0 to 30%</u>	LDAR for Connectors
CON-DT	<u>DT</u>	Slurry Loop	Connection	<u>Light Liquid</u>	<u>0 to 30%</u>	LDAR for Connectors
CON-DU	<u>DU</u>	Slurry Loop	Connection	<u>Light Liquid</u>	<u>0 to 30%</u>	LDAR for Connectors
<u>CON-JI</u>	<u>II</u>	Slurry Loop	Connection	<u>Light Liquid</u>	<u>0 to 30%</u>	LDAR for Connectors
CON-JJ	<u>JJ</u>	Slurry Loop	Connection	<u>Light Liquid</u>	<u>0 to 30%</u>	LDAR for Connectors

Equipment Id-ID No.	Unit No.Monitori ng Point ID	Location	Type of Equipment	Service	% Organic	Method of Compliance
CON-JK	<u>JK</u>	Slurry Loop	Connection	Light Liquid	<u>0 to 30%</u>	LDAR for Connectors
Ell A 441	441	441 Pump House	Flanged Connection	Light Liquid	0 to 30%	LDAR for Connectors
Ell-B-441	441	441 Pump House	Flanged Connection	Light Liquid	0 to 30%	LDAR for Connectors

Remove this page and insert the following:

 $Figure \ \underline{III.A-1} - {\scriptstyle \text{Figure 2-3 from HHRAP Subpart BB}}$

Monitoring Points

Figure III.A-2 — Subpart BB Monitoring Points in the Grinder

Building

Figure III.A-3 — Subpart BB Monitoring Points in the 440 Pump

House

Figure III.A-4 — Subpart BB Monitoring Points in the 441 Pump

House

NE CVP1068E02

ATTACHMENT III.B

Reserved

Test Report for Procedure T Verification of Total Enclosure Surrounding the Waste Propellant Grinding Operation at Radford Army Ammunition Plant (February 19, 2002)

Comment [RFAAP1]: Remove this attachment in its entirety. Report is submitted by ATK annually for Department review. Including a one-time version of it in the Permit seems arbitrary and capricious. We've clarified the text of the referring section to make sure that it references the annual report submittal instead of this attachment.

ATTACHMENT III.C

SCOPE OF WORK for REPORT ON CONTROL DEVICE TECHNOLOGIES

<u>ATTACHMENT III.C – SCOPE OF WORK for REPORT ON CONTROL</u> DEVICE TECHNOLOGIES

III.C.1. Purpose

The purpose of this report is to survey current technologies of control devices and to determine whether or not they may be safely applied to control organic air emissions from the Grinder Building, 442. This report is intended to satisfy the requirements of Permit Condition III.C.3.c.

III.C.2. Scope

The report shall cover, at minimum, the following topics:

- a. Current Technologies The report shall provide a survey of current control device technologies by type, i.e., enclosed combustion devices, vapor recovery systems, and flares. For each technology included, the report shall discuss the relevant mechanisms of its operation (e.g., method and efficiency of organic removal, equipment requirements, operational/maintenance procedures, technology limitations, etc.) and provide drawings/diagrams, as needed.
- b. DoD Explosives and Safety Standards The report shall provide an updated list of all applicable DoD regulations, instructions, manuals, guidances, etc., (citing specific sections, chapters, paragraphs, etc. where possible) along with a short summary of each requirement. All references used to support feasibility determinations (see Section III.C.2.e below) must be included. Such references may include documentation from qualified explosives and safety experts (however, such documenation shall be updated, as needed, taking into account current technologies and DoD standards).
- c. Other Explosives and Safety Standards The report shall provide an updated list of other (e.g., ATK, industry standards, etc.) applicable regulations, instructions, manuals, guidances, etc. along with a short summary of each requirement. All references used to support feasibility determinations (see Section III.C.2.e below) must be included. Such references may include documentation from qualified explosives and safety experts (however, such documenation shall be updated, as needed, taking into account current technologies and standards).
- d. Costs Cost estimates related to design, construction/installation, and operation of potentially viable control device technologies shall be provided. However, cost shall not be considered in the overall feasibility determination for each control device technology.

- e. Feasibility Determination The report shall provide a discussion concerning the viability of the control device technologies described in Section III.C.2.a above. This discussion shall include safety, effectiveness, and operation/maintenance considerations.
- f. Emerging Technologies The report shall provide a discussion of emerging control device technologies. This discussion shall be similar to that provided for Section III.C.2.a above.
- g. Bibliography The report shall provide a complete bibliography listing all of the references used in its development.

ATTACHMENT III.1.A

PLANS AND SPECIFICATIONS FOR TANKS

ATTACHMENT III.1.A – PLANS AND SPECIFICATIONS FOR TANKS

III.1.A.1. General

Two (2) hazardous waste tanks located in Building 442 are used for the storage and treatment of an aqueous propellant waste slurry, which is then piped from the <u>tanks</u> to the incinerators for destruction via incineration. The slurry is a mixture of waste propellant (D003) energetic material and water. The grinder building general arrangement drawings for the Grinder Building and the grinder and slurry <u>tanks</u>, Figures <u>III.1.A-</u>1 and <u>III.1.A-</u>2, provide top and side views of the process train. The process train includes the a container load trolley, a wet grinder, a metal and over-size dump, the two slurry tanks, waste tanks, a make-up water tank, two slurry pumps, and wastewater pumps.

The grinder Grinder building Building process flow diagram, Figure III.1.A-3, describes the instrumentation, which that monitors and controls the equipment depicted above. The ground propellant flows directly from the wet grinder into either of the two tanks. Based on operational requirements, the control room operator will determine which tank will receive the ground propellant. Figure <u>III.1.A-4</u> is a pictorial drawing which that shows the routing of the slurry mixture.

The two storage and treatment tanks are identical open-topped tanks. The tanks are situated one foot apart. When the first tank is full, the excess water is decanted to the second tank to achieve the appropriate slurry density. There is an interior closed loop piping system within the confines of the Grinder Building, which that recirculates the slurry -and maintains the suspension. The piping system from the mix-slurry tanks to the incinerator is bled off of this internal recirculating loop. Process operations are accomplished through a remote external control building (Buildling 447) with both air-operated and manually operated valves.

III.1.A.2. Description of Tanks

The tanks are dish-bottom tanks with internal baffles and agitating units to maintain a homogeneous slurry mixture. Total and operational capacities of the tanks, as well as tank dimensions and support structures, for these tanks are as follows:

Capacity:

1700-1,900 gallons (ea. tank) Total Operational 1200-1,520 gallons (ea. tank)

Dimensions:

Outer Diameter 6 ft. 6 in.

Attachment III.1.A III.1.A-1 Comment [RFAAP1]: The tanks have not been changed since the prior permit. This change is

correcting a typographic error that perpetuated through the last permit application

Height 8 ft, 4 in. Thickness 0.25 in.

Support:

Steel Angle Legs 4" x 4" x 3%" Concrete Footings 12" x 12" x 7"

III.1.A.23. Tank Corrosion and Erosion Protection

The tanks are constructed from <u>Type</u> 304 Stainless steel, which is compatible with the process materials (propellant slurry), therefore there <u>and</u> is <u>minimal resistant</u> to internal corrosion. Both tanks are located inside a building, thus external corrosion from the elements is also insignificant.

III.1.A.34. Secondary Containment System

The existing slurry tanks have secondary containment that meets the requirements of 9 VAC 20-60-264 adopting and 40 CFR 264.193 by reference. Any spills or leaks forom the two slurry tanks would be pumped to the catch tank as described above, or in the event of a pump or power failure would be contained in the slurry pit of the basement. The 5,000-gallon catch tank provides adequate capacity of the containment of the maximum volume of spilled slurry, 3,400-800 gallons. The basement of the grinder Grinder building Building is also capable of providing adequate containment capacity as demonstrated below:

Dimensions of basement:

```
\frac{2016}{6}-ft x \frac{3026.75}{6}-ft x \frac{1117.88}{6}-ft x 7.48 gal/ft<sup>2</sup> = \frac{40,36857}{242}
```

gallons

Tanks in grinder Grinder building Building:

2 slurry tanks (1700-1,900 gallons each)

2 neutralization caustic waste holding tanks (5,000 gallons each)

1 makeup water tank (1,500 gallons)

 $(2 \times \frac{1700}{1,900} \text{ gal}) + (2 \times 5,000 \text{ gal}) + 1,500 \text{ gal} = \frac{14,900}{15,300}$

gallons

Containment Available:

```
40,36857,242 gal -14,9005,300 gal =25,468,41,942 gallons
```

The grinder Grinder building Building basement is constructed of concrete. The secondary containment structure for the tanks in the grinder Grinder bBuilding does not have a coating, however, the concrete is compatible with the waste and is of sufficient strength and thickness to prevent failure owing to pressure gradients. In addition, the grinder Grinder building Building floor is free from cracks and gaps. The floor is designed to drain and remove liquids resulting from leaks and spills. Any spilled or leaked waste will be removed from the secondary

Attachment III.1.A III.1.A-2

Comment [RFAAP2]: This was remeasured specifically for this permit application. No modifications have been made to the overall basement structure since the prior permit. We believe there may have been an unnoticed typographic error in the previous application (mistaking a 17 for an 11).

containment system within 24 hours. The tanks are inspected daily to ensure their integrity. The method of leak detection is to inspect the secondary containment once every 24 hours.

Attachment III.1.A III.1.A-3

Remove this page and insert the following:

Figure III.1.A-1 — Figure D-1 ("Grinder Building General Arrangement (DWG No. 25757)") from ATK ltr dtd 13 Dec 2002

Figure III.1.A-2 — Figure D-2 ("Grinder and Slurry Tank Arrangement (DWG No. 25764)") from ATK ltr dtd 13 Dec 2002

Figure III.1.A-3 — Figure D-3 ("Grinder Building Process

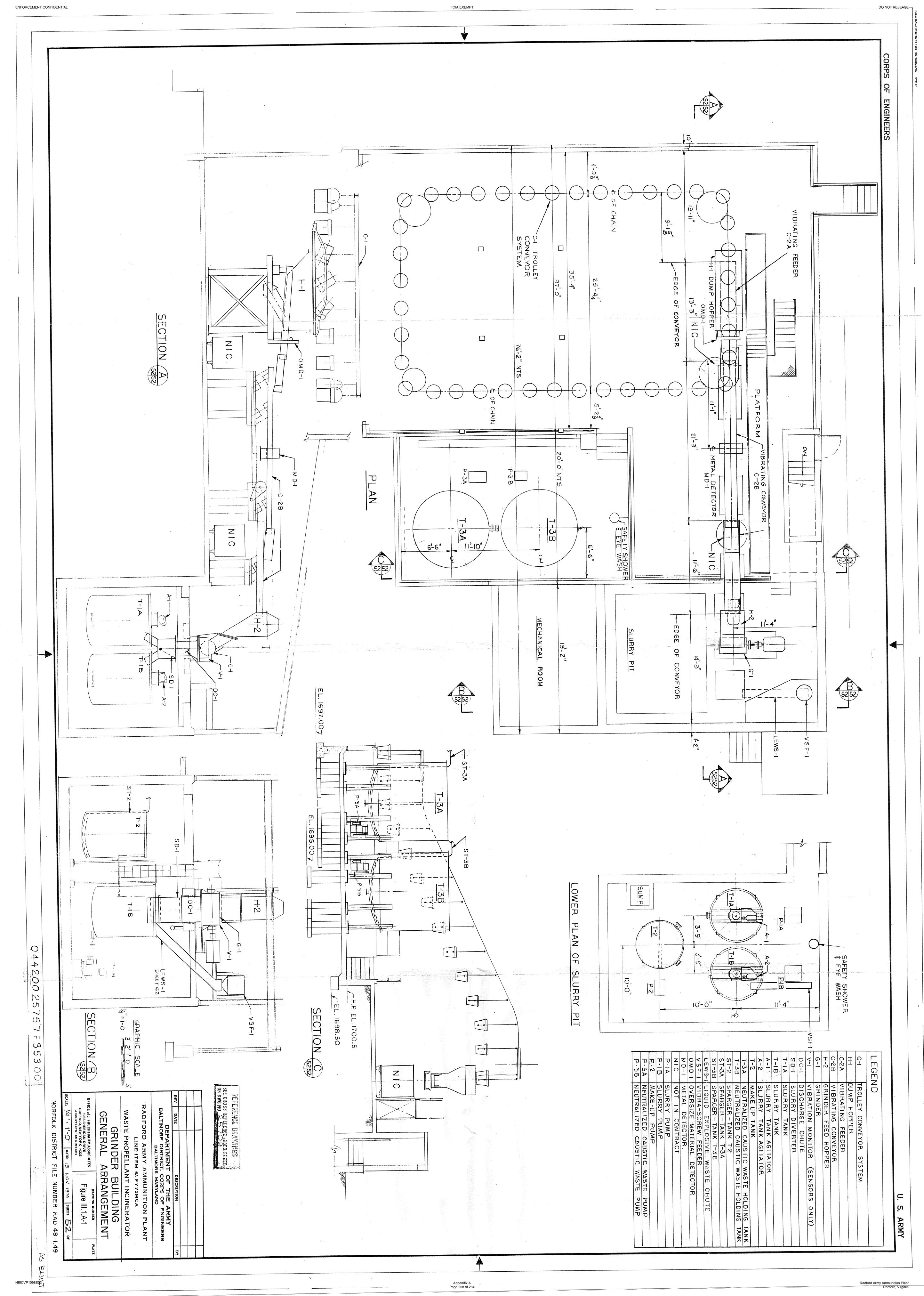
Figure II.1.A-4 — Figure II-4 from Sept. 15, 1994

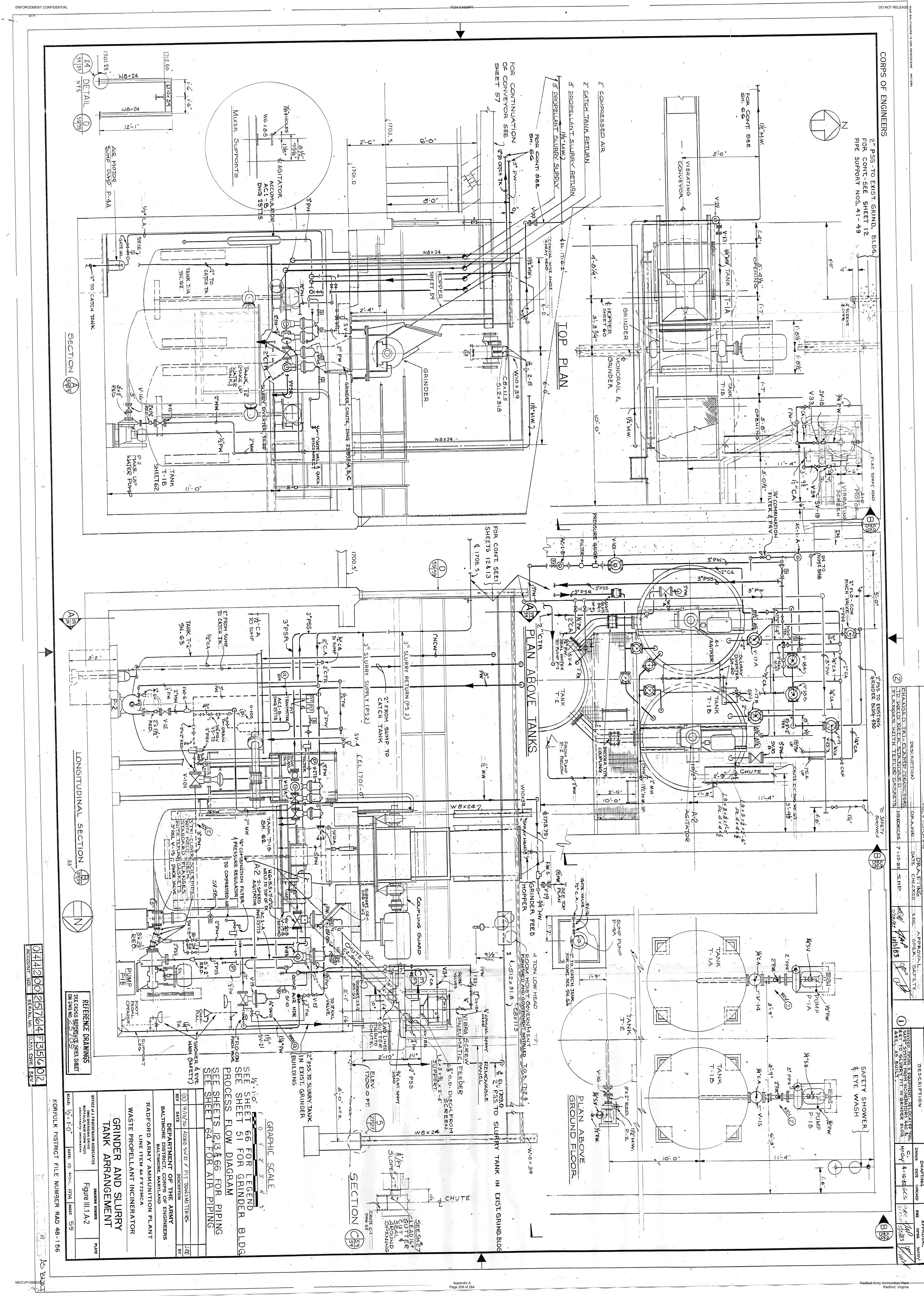
MODULE IV – RESERVED

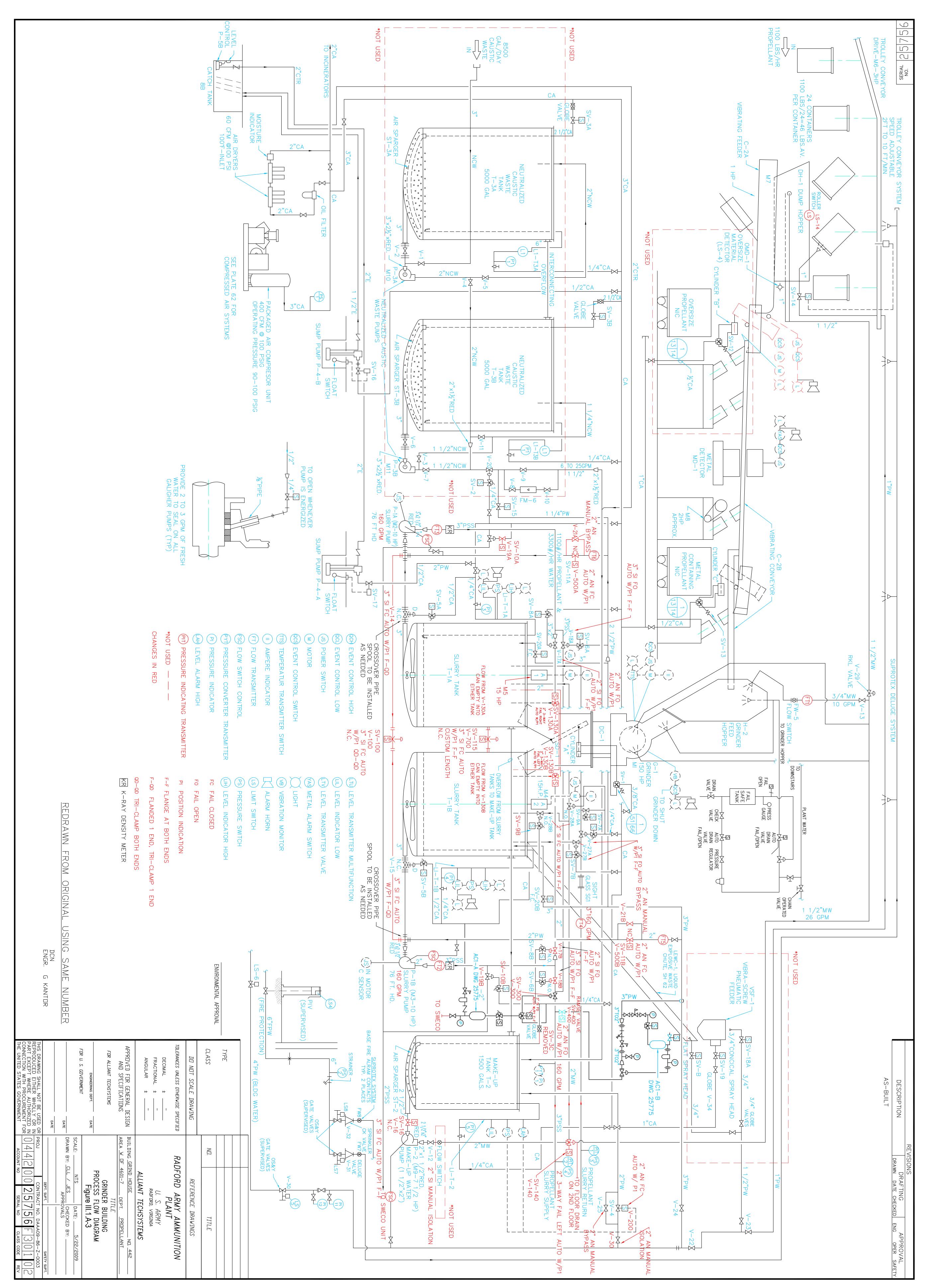
MODULE V – RESERVED

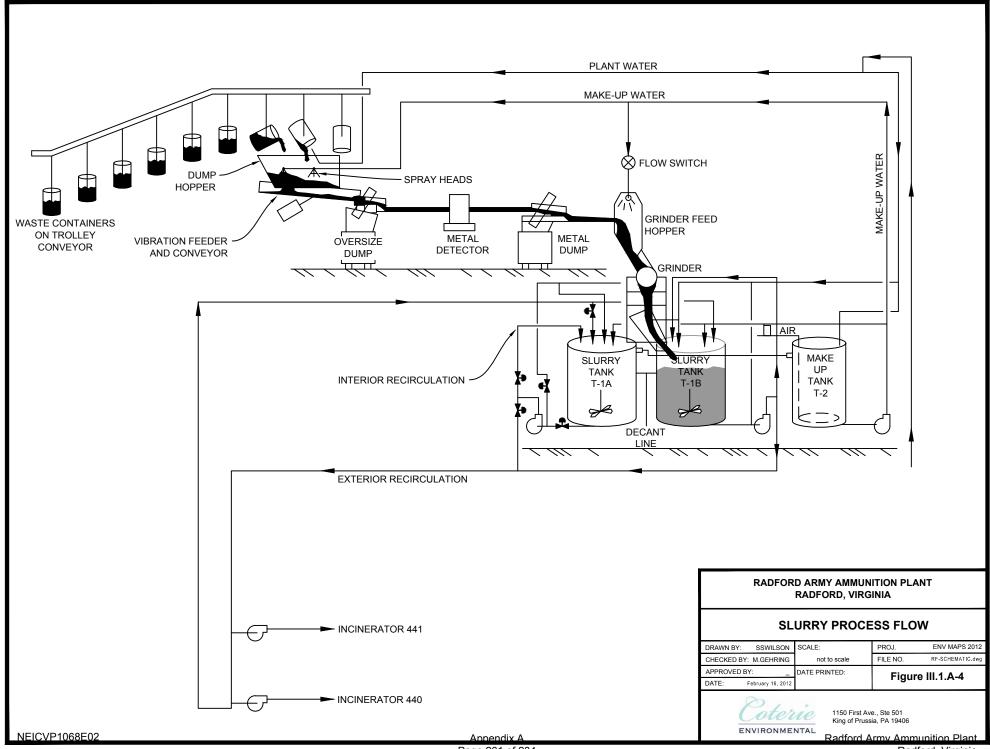
MODULE VI – RESERVED

MODULE VII – RESERVED









ATTACHMENT III.1.B STORAGE AND TREATMENT TANK OPERATION

ATTACHMENT III.1.B – STORAGE AND TREATMENT TANK OPERATION

III.1.B.1. General

All Standing Operational Procedures (SOPs) refer to RD-0000-K-002 unless otherwise indicated.

The waste containers are brought to either Building 430 or Building 442 to be managed in accordance with SOP Operation #5staged for incineration. The containers are transported to the Grinder Building 442 and loaded onto the trolley conveyor in accordance with SOP Operations #8 and #17. The conveyer transports the containers above the grinder where their contents are discharged into the grinder. The inverted containers are automatically washed with water sprays flushing the remainder of the reactive waste into the grinder. The material that enters the grinder is operated in accordance with SOP Operations #7, #9, #11, #12, #13, #14, #16 and #19 to generate a slurry having a controlled propellant towater ratio.then ground and mixed with water to form a slurry for incineration.

The spray or make-up water can be plant utility water or solid waste water having concentrations of diethylene glycol (DEG) and/or triethylene glycol (TEG) as specified in the Waste Analysis Plan, Attachment II.B, (see Module II). These solid wastes will be used as make-up water using the protocols delineated in SOP Operation #38.

The propellant-waste energetics are is cut in the grinder and must pass through the sizing screen before exiting the grinder. The ground propellant-material discharges into one of the two slurry mix-tanks (T-1A or T-1B). Tank selection is based on tank inventory, see SOP Operation #23. During the slurry incineration, the inventory of one of the two mix tanks is being reduced to supply slurry to the incinerator while the other mix tank is used to prepare the next slurry "batch".

Make-up water (see SOP Operation #15), TEG/DEG water, and/or decanted water (see SOP Operation #10) is added to a preselected mix-slurry tank along with the ground waste to generate the slurry batch. The slurry is continually agitated by the mix-tank impeller and/or air sparger or lance. The slurry is also pumped from the tank bottom and returned to the tank top (i.e., "interior" recirculation) or to the other mix-slurry tank (see SOP Operation #24) to further increase mixing. The turbulence of the agitation is controlled by adjusting the impeller angular velocity (see SOP Operation #18). The inventory level is continuously monitored and automatically controlled.

There are both "interior" and "exterior" slurry recirculation systems. The interior recirculation system pumps waste slurry from the tank bottom and back to the top of the same tank. Slurry circulating in this loop passes through a density meter

which that provides a continuous indication of the propellant to water ratiothickness of the slurry. A high ratio density yields indicates a thick slurry, which may plug the recirculation systems. A low ratio density requires an increase in auxiliary fuel consumption and restricts the incinerator's operational capacity.

Once the desired concentration slurry mix is achieved, the slurry is directed from the interior to the exterior recirculation loops (see SOP Operations #20, #24, and #37). The slurry feed pump located in the grinder buildingGrinder Building pushes the slurry through the 3" exterior recirculation flow loop (located on the pipe rack, approximately 20 feet above ground). The loop supplies either or both incinerators with slurry on a continuous basis.

The slurry pressure and flow rate in the exterior loop are continuously monitored. High pressure and low flow are an indication of pipeline blockage, which must be cleared in accordance with procedures stipulated in SOP Operation #37immediately to protect personnel and equipment. Low pressure and low flow (which conditions automatically activates an alarm) are and provide an indication of a ruptured loop pipe or a pump failure. When the alarm is activated, the operator must immediately survey the control panel to observe level movement in the mix slurry tank and electrical status of the pump. If operations appear to be abnormal then immediate corrective action is required as stipulated in SOP Operation #20.

When an electrical power outage occurs, the slurry metering pump will stop pumping slurry to the incinerator, and the exterior slurry recirculation system will automatically flush with emergency plant water to flush the residuale slurry in the exterior loop back to the slurry mix-tanks. Only when electrical power (either from the plant or an emergency generator) is restored and the kiln-incinerator is operating normally will the residual slurry from the metering pump be flushed forward into the kiln.

III.1.B.2. Inspections

The tanks and ancillary equipment will be inspected as outlined in the Inspection Schedule, Attachment II.C (see Module II). At least once each operating day, the following items shall be inspected:

- a. The slurry mix tanks (T-1A and T-1B) system (T-1A and T-1B) to detect external and internal corrosion, structural integrity, or leaking of waste;
- Data gathered from continuous monitoring equipment to ensure that the tank system and the secondary containment system is being operated according to its design;

- c. Construction materials, the area immediately surrounding the externally accessible portion of the tank system, and the secondary containment system to detect erosion or signs of leakage;
- d. Above ground piping for leaks;
- e. Pumps and seals for leaks and seal water flow rates; and
- f. Pressurized above ground piping system for leaks (internal and external recirculation systems).

III.1.B.3. Spills or Leaks From Tank Systems

The following sections provide a description of the practices employed for managing the waste slurry in the tank system. Procedures for preventing and responding to spills and leaks are discussed.

III.1.B.3.a. Tank Management Practices

Controls and practices in the grinder buildingGrinder Building are designed to prevent overfilling of the operating treatmentslurry tanks. High level alarms for the tanks are provided in the unit control systemlocated on the control panel in the control building. In the event of a tank overfill, the slurry will flow through a 6—inch pipe to a nearby the water makeup water tank. If any slurry spills onto the flowfloor, it drains to floor sumps 4A and 4B from which it and is then pumped to an outside catch tank 8B. The catch tank contents will either be directed back to the makeup water tank (SOP Operation #38) or will be pumped into an accumulation tank truck trailer depending on the inventory of material in the makeup water tank (see SOP Operation #38). The truck contents will then either be returned to the makeup water tank or will be managed in the facility wastewater treatment system. Any collected solids from spilled slurry will be accumulated in waste propellant containers and managed as hazardous waste in full accordance with all applicable SOPs and sections of the VHWMRrequirements.

The area surrounding each of the tanks is adequate to provide for maintenance and inspection requirements on the open tanks. At least once each operating day, the emergency shutdown controls, liquid level monitoring device, the alarm system and other control equipment are inspected to ensure that the tanks are in good working order. See -the Inspection Schedule, Attachment II.C (see Module II) for more details on tank inspection.

III.1.B.3.b. Procedures to Prevent Spills or Leaks

Hazardous wastes or treatment reagents will not be placed in the tank system if they could cause the tanks, their ancillary equipment or the containment system to rupture, leak, corrode, or otherwise fail. Slurry spillage or leakage from operation or maintenance shall be managed in accordance with <u>incinerator-standard</u> <u>incinerator operatingons</u> procedures. The spilled or leaked material will be collected in less_-than-_26-gallon containers and treated at either the OB Ground <u>open burning ground</u> or the <u>Incinerator-incinerators</u> after the cause for the spill has been corrected.

The following controls and practices will be utilized to prevent spills and overflows from the tanks or containment system:

- i. Spill prevention controls (check valves);
- ii. Overfill prevention controls (<u>continuous</u> level monitoring, high level alarm, bypass to the <u>water</u> makeup water tank); and
- iii. Maintenance of the sufficient freeboard in the tanks to prevent overtopping.
- III.1.B.3.c. Response to Spills or Leaks and Disposition of Leaking or Unfit for Use Tank Systems

In the event of a slurry tank overfill, slurry recycle loop pipe rupture, or pump casing failure that could impact human health or the environment, the procedure to manage a reactive slurry spill will be implemented in accordance with the protocols delineated in the Contingency Plan, Attachment II.E (see Module II). The spilled or leaked materials will be collected, placed into hazardous waste containers and accumulated on-site for less than 90 days. The liquid hazardous waste will drain to the catch tank and will be managed in accordance with the VPDES Permit or will be shipped off-site to an appropriately permitted TSDFfacilty.

If there is a leak or spill from the tank systems or the secondary containment system, or if the system is unfit for use, it will be removed from service immediately. If there is a potential for the problem to impact human health or the environment, and the Permittees will satisfy the requirements follow the procedures set forth in of the Contingency Plan, Attachment II.E.

If the tank system is unfit for repair, it will be cleaned according to the Closure Plan, Attachment II.F (see Module II) and disposed of according to Army policy and -the VHWMR.

ATTACHMENT III.1.C

PROCEDURES FOR HANDLING REACTIVE WASTES IN TANKS

ATTACHMENT III.1.C – PROCEDURES FOR HANDLING REACTIVE WASTES IN TANKS

III.1.C.1. Prevention of Reaction of Ignitable, Reactive, or Incompatible Wastes

The hazardous wastes managed at the permitted treatment and storage area are waste propellants, intermediate propellant products or finished productsenergetic materials from the RFAAP or NRU. The waste propellants energetics may exhibit the hazardous characteristics of ignitability (D001), reactivity (D003), and/or toxicity (D004-D011, D030). All wastes are of a similar chemical nature and are compatible with each other. Upon loading of the wastes into the tanks, Tthe solid energetic wastes are in tanks are mixed with water to form a slurry mixture that is not reactive or ignitable. All subsequent handling of this waste mixture is conducted in accordance with 40 CFR 264.17 as required by 40 CFR 264.198.

The waste propellants energetics are reactive and are capable of detonation or explosive reaction if subjected to a strong initiating source or if heated under confinement. A source of published documentation that identifies the reactivity of these wastes ir is provided in "Dangerous Properties of Industrial Materials," by N. Irving Sax (5th Edition, see dinitrotoluene (DNT), p.619-620 and nitrates p. 853). The Sections below outline the Permittees' approach to storing and treating these reactive hazardous waste.

III.1.C.2. Precautions to Prevent Ignition or Reaction of Reactive Wastes

All propellant manufacturing, storage, testing, and support activities (except administration) are included in limited access areas of the facility. Information signs warning against smoking and the introduction of flame-producing devices are displayed at all normally used entrances to the limited areas. A security guard stops each entering vehicle and requests all flame producing devices in the vehicle. In addition, "Unauthorized Personnel Keep Out" signs have been placed at the Grinder Building and the two incinerators. Signs, which that read "DO NOT GO WITHIN 50 FT. OF INCINERATOR WHILE RED LIGHT IS ON;" are posted at the entrance to each incinerator. All visitors are required to checkin at the incinerator control room before entering the area.

RFAAP has several operating procedures aimed at preventing ignition or reaction of the waste propellantsenergetic materials. Sparks are avoided at the hazardous waste facilities by requiring all of the operating personnel to wear conductive shoes when involved with propellant energetic waste operations. Heat or spark producing, electrically powered, or impact tools required for maintenance are permitted in operating buildings only with written permission.

Attachment III.1.C

III.1.C-1

In addition to these procedures, one of RFAAP's maintenance operating procedures is to assure that the application of a maintenance product (e.g., adhesive, lubricant, solvent, etc.) will not result in a heat-producing chemical reaction when in contact with propellant or propellant ingredients the energetic materials. All products to be used by maintenance personnel which that have not been proven compatible must be assured by laboratory testing.

III.1.C.3. Preventive Procedures Structures, and Equipment

Hazards in the unloading operations, loading, and handling operations, as well as handling and loading operation, at the tank and at the Grinder Building will be minimized through implementation of safety precautions included in the facility operating procedures and employee training. the appropriate provisions of the operating procedures currently in use at the facility.

a. UOP 4-12-28: Transporting Propellants and/or Propellant Ingredients

b. UOP 4 3 2H: Pickup and Transporting Waste Explosive

c. SOP RD 000 K 002, Operation No. 8: Loading the Trolley Conveyor

d. GOP 4-1-2B: Powder Van Operations

These documents include general safety requirements, a list of related materials and equipment, and numerous operating procedures pertaining to the transport and handling of the waste propellants.

The first two documents cover the transportation procedures of the propellant containers. The third document covers the handling of the waste propellant container in the grinder building.

Transportation of the waste propellant containers is accomplished with powder vans. Procedures for docking, and operating powered and hydraulic tailgates are given in the fourth document (listed above).

Once the waste propellant <u>containers have</u>has safely arrived at the <u>grinder Grinder buildling</u>Buildling, it is the contained energetic materials are ground and added to the slurry tanks. In these tanks, the ground energetics materials are mixed with <u>water processed into to form a slurry form that is no longer ignitable or reactive</u>. This <u>propellant</u> slurry is then transported to the incinerators through pipelines. All control of these operations is provided remotely in the incinerator control room. With the exception of certain emergency scenarios (*e.g.*, plugged piping or pipeline breaches), there is no personnel interaction with the wastes once they are ground and loaded into the slurry tanks.

management of reactive waste in tanks. Therefore, information pertaining to management of these wastes prior to their introduction to the tanks (e.g., retrieval from operating areas and transport in vans) is not appropriate for inclusion here.

Comment [RFAAP1]: This section concerns

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The tanks themselves are situated such that a reaction within them will be localized to the Grinder Building or the area immediately around it. The tanks are designed such that they comply with requirements for the maintenance of protective distances between the waste management area and any public ways, streets, alleys, or an adjoining property line that can be built upon as required in Tables 2–1 through 2–6 of the National Fire Protection Association's "Flammable and Combustible Liquids Code," (1977 or 1981), (incorporated by reference, see §260.11) and 40 CFR 264.198.

III.1.C.3.a. Management of Reactive Wastes in Tanks

The wastes are transported to the grinder Grinder building Building (Building No. 442) where they are ground and mixed with water to form a slurry. Experimental test results given in the final report entitled "Evaluation of burning Burning H-6 propellant in the Waste Propellant Incinerator," (Production Engineering Project PE-543, November 20, 1975) have shown for a variety of propellants and explosives this aqueous slurry will provide a suitable combustible and/or explosive transport medium. The aqueous slurry also serves as an effective suppressor to flame or explosive shock. The water will prevent localized initiations, which that could occur during normal or abnormal operating conditions that and that would result in a sustained burning reaction or explosion. The wastes are piped over to the waste propellant incinerators in a slurry form and injected into the incinerator.

The waste propellant incinerators are operated remotely from the main control room. Personnel will not come in direct contact with the slurry mix since it is a remote operation and all slurry is in an enclosed recirculating system. In order to prevent settling in the lines, the slurry is continuously recirculated through the exterior recirculation loop. When the incinerators are operation, a portion of this flow is directed through the pickup line and metering pump to the incinerator. with approximately 2 3% being tapped off and fed to the incinerator. Continuous operation of the loop This will ensures good circulation in all lines and prevents the possibility of accumulation of solids in critical areas.

Attachment III.1.C III.1.C-3

ATTACHMENT III.2.A

PLANS AND SPECIFICATIONS FOR INCINERATORS

ATTACHMENT III.2.A – PLANS AND SPECIFICATIONS FOR INCINERATORS

Comment [RFAAP1]: Changes to this section reflect compelte conversation of incinerators to MACT regulation (absent RCRA general requirements).

HI.2.A.1. Detailed Engineering Description and Drawings of Incinerator

The incinerator complex at Radford AAP consists of two identical rotary kiln incinerators, referred to as Incinerators 440 and 441. These two units are identical in every aspect of their design and operations. All components, materials, and proportions are the same.

The two incinerators were designed to incinerate off-specification or production waste propellant energetic mixtures. These mixtures are brought from the production area to the Grinder Building, where they are ground and mixed with water to form a slurry. A pump system located in the Grinder Building supplies both incinerators with this slurry feed on a continuous basis. The incinerators and Grinder Building may be in operation 24 hours per day, 365 days per year. On average, at least one of the two kilns is operating approximately 60 65% of the year. Downtime occurs due to changes in production demands, scheduled maintenance periods, or unscheduled maintenance activities relating to mechanical difficulties.

The incinerators burn a wide variety of propellant energetic mixtures based on the production schedules of the facility. Figure III.2.A-1 is a process schematic of the incinerator facility at RFAAP. Each incinerator consists of the following components:

- Waste Feed System (not shown)
- Rotary Kiln
- Afterburner
- Auxiliary Fuel System
- Evaporative Cooler
- Fabric Filter
- Gas Pre-cooler
- Packed-bed liquid scrubber with demister
- Induced Draft Fan (Prime mover)
- Exhaust stack
- Brine System (Neutralization, Brine and Caustic Tanks)

In addition to the components listed above, each incinerator is also equipped with an instrumentation package to monitor, control and record the combustion process parameters.

In accordance with 40 CFR 264.340(b), *Integration of MACT Standard*, and 270.62, all RCRA waste analysis, performance standards, operating requirements, monitoring requirements, and inspection requirements for the incinerators no longer apply once the facility demonstrates compliance with the Hazardous Waste Combustor National Emission Standards for Hazardous Air Pollutants (HWC NESHAP) and submits their Notification of Compliance. ATK completed this process in May 2004. Accordingly, most of the information specified by 40 CFR 270.19 is no longer applicable. Details related to operation and design of the incinerators and associated

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equipment are now addressed under the Clean Air Act's HWC NESHAP. General RCRA requirements for these incinerators are addressed elsewhere in this Permit.

The primary and secondary combustion system, consisting of the rotary kiln and the afterburner, are described in detail in Section III.2.A.2. The remaining components of the incineration system are described in Section III.2.A.7.

III.2.A.2. Description of the Incinerator

General System Description Combustion Components

Each incineration unit is comprised of a primary combustion chamber (rotary kiln), followed by an afterburner system that elevates gas temperature to high temperatures to ensure the destruction of any unburned organic constituents and carbon monoxide (CO) in the kiln exit gas.

Description of the Rotary Kiln

The rotary kiln is designed to incinerate water based slurries of bulk explosives and propellants, which are mixed at the Grinder Building and pumped into the incinerator through the waste feed system described later in Section III.2.A.3. The kiln rotation causes a tumbling action that allows the water in the slurries to evaporate, and the waste explosive or propellant to slowly burn in a controlled environment.

Each kiln is equipped with a variable speed drive system connected to a mechanical gear reducer. This mechanical drive unit is connected via a drive shaft to four trunnion rollers to provide a friction rotary drive.

The kiln feed breeching and discharge breeching are both stationary, with the kiln barrel rotating between the breechings. The kiln is equipped with seals to promote a seal between the rotating barrel and fixed breechings. These feed and discharge breeching seals prohibit fugitive emissions from the kiln and minimize infiltration of un monitored air. In addition, these seals allow for a slight negative pressure, or vacuum, to be maintained in the kiln, hence preventing leaks to the external environment.

Slurries of propellant and water are fed into the burner end of the kiln through a slurry nozzle and progress through the kiln to the discharge end. These slurries are fed at rates which are designed to impede or eliminate any detonations. Propellant ash is removed from the discharge breeching by the ash removal system. This system consists of a slide gate that is periodically opened to allow ash to fall through into an ash holding bin. Materials collected from this bin are analyzed for reactivity and toxicity. If the results of this analysis indicate that the ash is a hazardous waste, it will be disposed of in an approved hazardous waste landfill; if analyses prove the ash to be non-hazardous, it will be disposed of in a permitted, off site solid waste landfill.

The kiln shell is a carbon steel cylinder. The inside of the shell is refractory lined. The feed breeching and discharge breeching are also lined.

Description of the Afterburner

Combustion gas exits the kiln and enters the afterburner through a refractory lined duct. The afterburner is a horizontal cylinder with a gas inlet and outlet located on either end. The

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afterburner shell is fabricated from carbon steel and is refractory lined. The afterburner's internal, vertical baffle system, constructed of refractory brick, increases the gas turbulence and hence, promotes combustion gas mixing. Adequate mixing, along with a maximum temperature elevation, ensures the destruction of unburned organic constituents and CO.

The afterburner is equipped with two burners. These burners, which are fueled by natural gas, are located 180 degrees apart on the cylinder shell near the gas inlet end. Combustion air and atomizing air are supplied by a blower common to both the kiln and afterburner.

III.2.A.3. Description of the Waste Feed System

Bulk propellants are blended with water at the Grinder Building, to form a mixture of water and propellant, which is referred to as the waste slurry. The mixture is created in two slurry tanks and pumped to the incinerator through a slurry feed system. Each tank has capacity of 1,700 gallons to the overflow.

Processing of the bulk propellants occurs at the Grinder Building. Here, bulk propellants from throughout the RFAAP facility are sent in specially labeled 20 gallon waste containers to be ground and incinerated. Prior to a grind, these buckets are loaded onto a suspended conveyor system, which transports the buckets up to the tank feed chute. All buckets to be used in a grind are loaded on the conveyor prior to grinding of any batch. The process of grinding the propellant is completely controlled by the operators in the control room. When a batch is to be ground, the conveyor is started. The conveyor carries each bucket up to the feed chute, and dumps the contents of the bucket into the feed chute. The bulk propellants travel down the feed chute to the grinder, where they are chopped into very small pieces of propellant. This propellant is then dropped into one of two feed tanks. Once the entire batch of propellant has been added to the feed tank, the tank is filled with water. The amount of water added to the tank is calculated by a computer based program, which evaluates the amount of water needed to meet all feed limits. Once the water is added, the agitator on the tank is initiated to form a homogenous mixture of propellant and water, which is called the slurry.

The slurry feed system is a re-circulating flow loop with a water flush system. The slurry feed pump, located in the Grinder Building, pumps slurry through this flow loop. Another pump, located at the incinerator, pulls slurry from the loop into the slurry pickup line and injects it into the kiln slurry lance. This metering pump is non reversing. Whenever waste feed is cut off, fresh water is manually injected into the pickup line to flush the residual slurry in the line after the metering pump through the slurry lance into the kiln. This procedure is executed manually to avoid sending too much water to the kiln and prevents propellant from remaining in the pickup line when waste feed has been discontinued.

III.2.A.4. <u>Description of the Auxiliary Fuel System</u>

The auxiliary fuel system is used to initiate and maintain the temperature of the incinerator and the afterburner during incinerator operation. Natural gas, the auxiliary fuel, is fed to the kiln and the afterburner through a supply line that splits flow to both devices. These lines are separate from the slurry feed lines described earlier.

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The auxiliary fuel system is used to initially bring both the kiln and the afterburner up to desired operating temperatures, described below. Following start up of the incinerator and afterburner, the auxiliary fuel system feeds fuel to the incinerator and afterburner to maintain desired temperatures, as the waste is subautogenous and cannot support its own combustion without supplemental fuel.

The rotary kiln is equipped with a single burner, which is located on the feed breeching. This burner is designed to burn natural gas as the auxiliary fuel source. An automatic flame safety supervisor monitors flame status and controls burner start up and shut down sequences, including the feed of auxiliary fuel to the burner. Additionally, the kiln is equipped with a thermocouple that is connected to temperature controller that transmits to the control room. This temperature controller modulates the natural gas valve to vary flow of auxiliary fuel to the kiln and to control the kiln temperature.

The auxiliary fuel system helps the afterburner elevate and maintain the gas temperature. Initially, the auxiliary fuel system is used to raise the temperature of the afterburner before any incineration/processing of wastes begins. This is accomplished by feeding the auxiliary fuel to the afterburner's two burners. These burners, much like the kiln's burner, are equipped with a flame safety supervisor that monitors flame status and controls start up and shutdown sequences.

III.2.A.5. Capacity of Prime Mover

The prime mover for the incinerator system at RFAAP is an induced draft (ID) fan, located downstream of the packed bed scrubber, described in Section III.2.A.7. The ID fan drafts combustion gases through the entire incineration system and maintains a negative pressure (vacuum) throughout the system.

A damper, located on the discharge of the ID fan, is manually adjusted to control the amount of gas pulled through the incineration system. The damper is set to maintain a negative pressure at the rotary kiln. The control damper position is adjusted and the position manually logged prior to incinerating waste. The ID fan inlet temperature is measured at the scrubber exit, continuously recorded, and transmitted to the control room.

HI.2.A.6. <u>Air Pollution Control Devices</u>

Air Pollution Control Devices

In the Air Pollution Control System (APCS), the combustion gases from the rotary kiln and afterburner are conditioned to remove acid gases, particulate and metals. An ID fan maintains a vacuum throughout the unit and provides the motive force for the gas cleaning. The Air Pollution Control Devices (APCDs) in use at the RFAAP facility include the following units, all of which are described in this section:

Evaporative Cooler

Fabric Filter

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- Gas Pre-Cooler
- Packed Bed Scrubber
- Induced Draft (ID) Fan
- Exhaust Stack

In addition to the components mentioned above, the brine system, including the Neutralization Tank and Brine Tanks, circulates brine through the various APCDs to cool and scrub combustion gas. Figure 3 depicts process flow through the APCS.

The gas from the rotary kiln proceeds through the afterburner, where further destruction of organic constituents and earbon monoxide (CO) occurs. From the afterburner, the gas travels through refractory lined ductwork into the evaporative cooler, where it is cooled. Once cooled, the gas moves to the fabric filter, where contact with a baffle and flow through filter bags causes particulate matter to fall out. Following particulate removal, the gas travels through insulated ducts and enters the pre-cooler, where it is cooled to saturation. The packed-bed scrubber, located downstream from the pre-cooler, is responsible for scrubbing acid gas and further removing particulate matter from the gas stream. From the packed-bed scrubber, gas is drawn through the ID fan and the associated damper. The cooled, scrubbed gas stream travels through the exhaust stack and is dispersed into the air. All ductwork is primed and painted on both the interior and exterior.

Each of these components is described in detail in the following sections.

Evaporative Cooler

Combustion gas exiting the afterburner is routed by refractory lined ductwork to the evaporative cooler. Scrubber system brine is sprayed into the evaporative cooler to reduce the combustion gas temperature.

The evaporative cooler is a vertical steel cylinder with the gas entrance on the top center and the gas exit on the side bottom. The top part is refractory lined to protect against high temperature.

The evaporative cooler is equipped with a bottom hopper to collect any residue that falls out of the combustion gas. A rotary valve on the hopper discharge removes the ash, while providing a seal and maintaining vacuum inside the cooler. Ash is collected in a holding bin and disposed of with kiln ash.

Nozzles spray brine into the gas stream for evaporation. The brine nozzles use compressed air to atomize the brine. Brine is supplied by the brine pumps discussed later in this section. Another nozzle is provided for emergency quenching should the brine supply fail. Plant water, a protected water supply, is connected to the emergency nozzle.

Fabric Filter

Cooled combustion gas exiting the evaporative cooler is routed to the fabric filter via ductwork. The gas strikes a ladder vane baffle as it enters the fabric filter. Contact with the baffle causes larger particles to fall out and distributes the gas evenly throughout the matrix of bag filters. As gas flows through the bag fabric from outside to inside, particles are collected on the outside of the bags. Inside each bag is a rigid wire cage that keeps the bag from collapsing. The cleaned combustion gas then flows out the top of the bag through an opening in the tubesheet. Upon

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exiting the bags, the gas enters a clean gas plenum and exits the module through a ductwork connection.

The fabric filter, fabricated from carbon steel, is rectangular in shape, and has an ash collection hopper on the bottom. The carbon steel is factory coated, both internally and externally, to prevent corrosion. Gas enters the fabric filter through the bottom side connection and exits via the top side connection.

As particulate collects on the bags, the pressure drop across the bags increases. The fabric filter local panel automatically initiates the cleaning sequence when the buildup of particulate causes the pressure differential across the fabric filter to reach a pre determined value. Solenoid piloted diaphragm valves are opened by the local panel to provide a burst of compressed air that travels the entire length of the bags, causing the bags to snap outward. This jet pulsed air, directed counter current to normal gas flow, dislodges the particulate from the bags. This method of cleaning permits only one row of bags to be cleaned at a time. The particulate, once loosened, falls into a hopper located below the bags. Particulate is discharged by a rotary valve located on the hopper bottom to an ash removal cart where it accumulates before being transferred for disposal.

Bypass ductwork, constructed from carbon steel, is installed around the fabric filter. Pneumatically operated valves on the fabric filter inlet duct (butterfly valve) and the bypass duct (puppet valve) are manually or automatically opened and closed by the local panel to isolate and bypass the fabric filter should the evaporative cooler exit temperature become too low or high. Gas Pre Cooler

Combustion gas exits the fabric filter and travels through a duct into the gas pre cooler. The precooler, a direct contact quench system, utilizes water sprays to cool the gas from the fabric filter exit to the saturation temperature.

The pre cooler is a vertical, metal, cylindrical vessel. The pre cooler is equipped with a conical bottom for water and particulate removal. Excess water is gravity drained from the pre cooler bottom to the neutralization tank. The supernatant from the pre cooler is recycled and reused in the gas cooler and scrubber.

The pre-cooler is serviced by conical spray nozzles that spray water counter current to the gas flow. The cooling water is pumped to the nozzles by scrubber water pumps in the brine system.

Packed Bed Scrubber

The gas, once cooled in the pre-cooler, is routed to the packed-bed scrubber, which is designed to scrub acid gas and further remove particulate matter.

The packed bed scrubber is a cylindrical vessel and is constructed of stainless steel. Gas flow through the scrubber proceeds from the entrance at the bottom of the scrubber through the exit at the top. The internals consist of packing in the lower section and a mist eliminator in the upper section.

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A conical spray nozzle, located within the packing in the scrubber, sprays water countercurrent to the gas flow. Additional nozzles, located below the packing, spray water in the direction of the gas flow. The excess water is drained to the neutralization tank. The spray nozzles are fed water from the scrubber water pumps in the brine system.

ID Fan

The ID fan is located downstream of the packed bed scrubber and is responsible for drafting combustion gases through the entire incineration system.

The radial tip stainless steel fan is arranged in a bottom angular configuration for counter clockwise rotation. The drive for the fan is provided by an electric motor.

Exhaust Stack

The discharge of the ID fan is routed into the exhaust stack, where it is then dispersed into the air as a cooled, scrubbed gas stream.

The exhaust stack is a reinforced fiberglass cylinder. It is equipped with an inlet duct, inspection port, and upper and lower sampling ports. The sampling ports are used for stack gas sampling and for the stack gas analyzer connection, which is used for the continuous emission monitoring system.

Brine System

The brine system used to cool and scrub gas consists of a neutralization tank, a brine tank, a caustic tank, and associated pumps and piping.

The neutralization tank system consists of the neutralization tank and two scrubber water pumps. The cylindrical neutralization tank collects brine which is gravity drained from the gas pre cooler and the packed bed liquid scrubber. The scrubber water pumps re circulate brine to the pre cooler and packed bed liquid scrubber spray nozzles and transfer scrubber water to the brine tank on level control. The fiberglass reinforced plastic tank has a capacity of 1100 gallons.

Caustic is pumped to the neutralization tank to neutralize the brine drained from the pre-cooler and scrubber. The pH is automatically maintained by controlling the caustic input to obtain the desired pH value. Makeup water is supplied to the neutralization tank from the plant water supply.

Brine is transferred from the neutralization tank to the brine tanks by the scrubber water pumps mentioned previously. The brine tanks along with the brine recirculation pumps are part of the brine tank system. The brine recirculation pumps move the brine from the tanks to the evaporative cooler nozzles to cool the combustion gas. The cylindrical fiberglass reinforced tanks each have a capacity of 8500 gallons.

III.2.A.7. Nozzle and Burner Design

Nozzles and burners are used throughout the incineration system at the RFAAP and provide various process inputs. Nozzles provide water or waste slurry to the incineration system.

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Burners provide heat during system start-up and control temperatures throughout the burning of waste due to the subautogenous nature of RFAAP's wastes. Descriptions of each of these nozzles and burners are given below.

Rotary Kiln Nozzle

A slurry nozzle, located within the rotary kiln, feeds slurries of propellant and water into the kiln at the burner end. The slurry spray is atomized to increase the mixing of the stream and to achieve the greatest use of the kiln surface area. The spray is atomized by an external air atomizer, which blows pressurized air upwards towards the nozzle exit.

Rotary Kiln Burner

The rotary kiln is equipped with a burner located on the feed breeching. This burner is designed to burn natural gas. Combustion air and atomizing air are supplied to the burner by an air blower. The kiln burner is equipped with a flame safety supervisor. This flame safety supervisor monitors flame status and controls burner start up and shut down sequences.

Afterburner

The afterburner is equipped with two burners. These burners are located 180 degrees apart on the cylinder shell near the gas inlet. The burners use natural gas as fuel. Combustion air and atomizing air are supplied by a blower, common to both the kiln and afterburner. The burners are equipped with a flame safety supervisor that monitors flame status and controls start-up and shutdown sequences.

Evaporative Cooler Nozzles

The evaporative cooler is equipped with spray nozzles. Of these three nozzles, two are designed to spray brine into the gas stream for evaporation. These nozzles spray brine (total) in a full cone pattern. The third nozzle is designed to provide water for emergency quenching operations.

Gas Pre Cooler Nozzles

The pre cooler is serviced by conical spray nozzles that spray water counter current to the gas flow. The water for these nozzles is supplied by the two scrubber water pumps, near the neutralization tank.

Packed Bed Liquid Scrubber Nozzles

The packed bed liquid scrubber is equipped with conical spray nozzles that provide water spray counter-current to the gas flow. These nozzles are located below the packing in the lower section of the packed bed liquid scrubber. The water for these nozzles is supplied by the two scrubber water pumps, near the neutralization tank.

HI.2.A.8. Construction Materials

All components of the RFAAP incineration system, including the air pollution control devices (APCDs) described in the previous section, are constructed of specific materials.

The rotary kiln and afterburner are both fabricated from steel and lined with refractory. In addition, the feed breeching and discharge breeching of the kiln, along with the afterburner's

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internal vertical baffle system, are also lined with castable reftactory. The pre cooler, also lined with refractory, is constructed from a steel shell. The packed bed liquid scrubber and the exhaust stack are also constructed of steel. The brine and neutralization system tanks are constructed from fiberglass reinforced plastic.

Rotary Kiln

The rotary kiln consists of a carbon steel shell. The kiln is refractory lined with firebrick that covers the entire length of the kiln. In addition to the kiln shell, the feed breeching and discharge breeching are also lined with castable refractory.

Afterburner

The ductwork leading from the kiln to the afterburner is refractory lined. The afterburner is constructed of a carbon steel shell. This shell, like the duct from the kiln, is also refractory lined with firebrick. In addition to the afterburner shell and the duct from the kiln, the afterburner's internal vertical baffle system is also lined with refractory brick.

Evaporative Cooler

The evaporative cooler is constructed of a carbon steel shell. The shell is coated, both internally and externally to prevent corrosion of the steel. The top section of the evaporative cooler is refractory lined with firebrick.

Fabric Filter

The fabric filter, like the evaporative cooler, is constructed of carbon steel shell, coated, both internally and externally to prevent corrosion. Filter bags occupy the inside of the fabric filter. The bypass duct around the fabric filter is constructed of a carbon steel shell.

Gas Pre Cooler

The pre cooler is a metal cylinder, lined with castable refractory.

Packed Bed Liquid Scrubber

The packed bed liquid scrubber is constructed from stainless steel. The lower portion of the scrubber is packed with packing. A demister is located above the packing, prior to the scrubber exit.

ID Fan

The ID fan, the driving force for the incineration system, is constructed of stainless steel.

Exhaust Stack

Each exhaust stack is constructed of stainless steel.

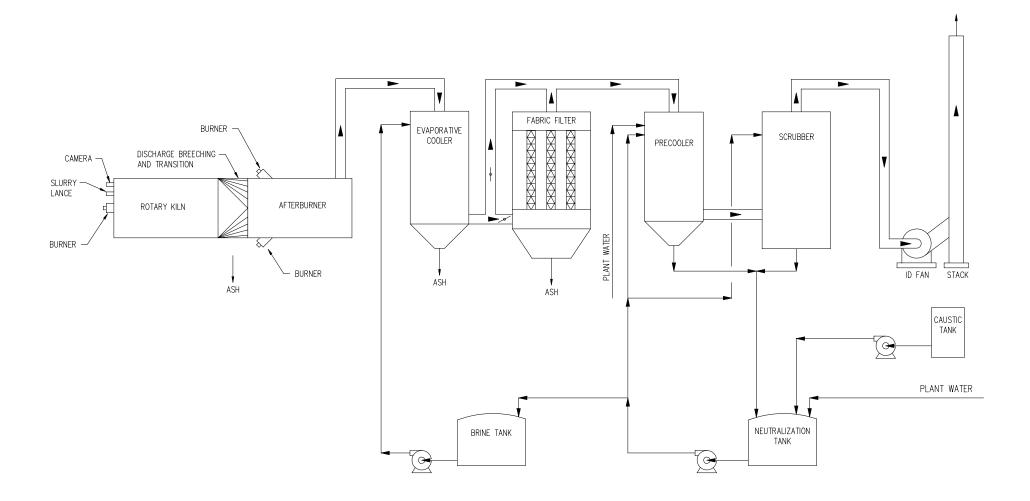
Neutralization, Brine and Caustic Tanks

The brine and neutralization system tanks are constructed of fiberglass reinforced plastic.

Attachment III.2.A

Remove this page and insert the following: Figure III.2.A-1 — Incinerator Process Schematic

FIGURE III.2.A-1 INCINERATOR PROCESS SCHEMATIC



Virginia Department of Environmental Quality Division of Waste Program Coordination Office of Waste Permitting

MODULE VIII – SITE-WIDE CORRECTIVE ACTION

VIII.A. <u>CORRECTIVE ACTION FOR CONTINUING RELEASES;</u> PROTECTION OF HUMAN HEALTH AND THE ENVIRONMENT

The requirements of 40 CFR 264.101 are addressed by the Corrective Action Permit issued to the Permittees by EPA Region—III which became effective on October 31, 2000 and shall remain in effect until October 31, 2010. The terms and conditions of the Corrective Action Permit issued by EPA are adequate to fulfill the Department's requirements for facility-wide corrective action as specified in 40 CFR 264.101 as made applicable by 9 VAC 20-60-264.

VIII.B REPORTS, NOTIFICATIONS, AND SUBMISSIONS TO THE DEPARTMENT

Copies of all notifications, report, and submissions made in compliance with the EPA permit shall be provided to the Director in accordance with Permit Condition I.I. (see Module I).

Permit No. VA1210020730

Expiration Date: October 31, 2012

MODULE IX – SCHEDULE OF COMPLIANCE

[RESERVED]